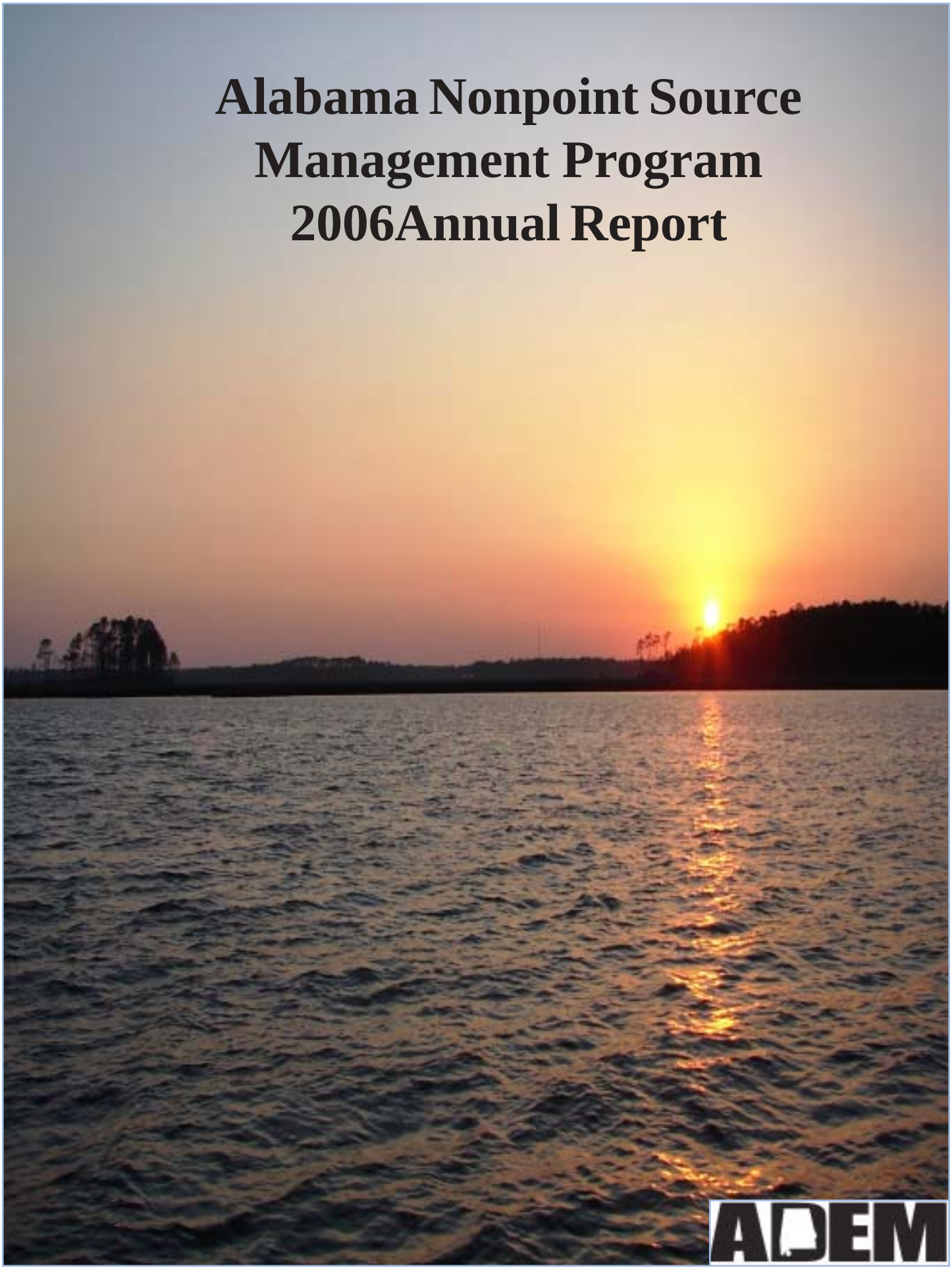
Alabama Nonpoint Source Management Program 2006Annual Report



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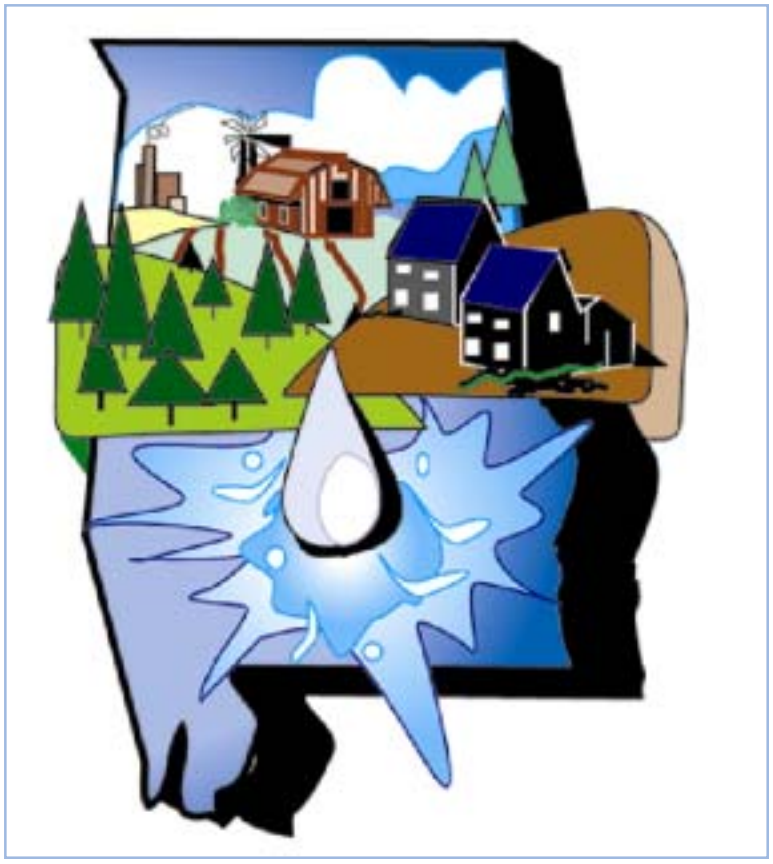

Alabama Department of Environmental Management

Copies of this report are also available on the ADEM Website at:
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Contents

CHAPTER 1
Introduction

Nonpoint Source Pollution

Nonpoint source pollution (NPS), also known as polluted runoff, is the largest cause of water quality impairments in Alabama, as well as across the country. It accounts for approximately two-thirds of the water quality impairments in our streams and lakes. Unlike point source pollution that enters waters from definable locations such as discharge pipes, nonpoint source pollution originates from a variety of sources. Nonpoint source pollution is usually associated with farming, logging, mining, urban areas, construction activities, land disposal, onsite septic systems, and wastewater disposal activities. Atmospheric deposition can also contribute to nonpoint source pollution.

Our day-to-day activities such as driving vehicles that leak fluids, improperly applying lawn care products, dumping waste petroleum products down stormdrains, or improperly treating residential wastewater can also contribute to nonpoint source pollution. Generally, as rainfall runoff moves over and through the soil, it may pick up and carry NPS pollutants such as pesticides, fertilizers, nutrients, metals, sediment, and pathogens and deposit them in rivers, lakes, groundwater aquifers, wetlands, and coastal areas. These pollutants may then threaten human health, or be toxic to livestock, wildlife, and aquatic organisms.

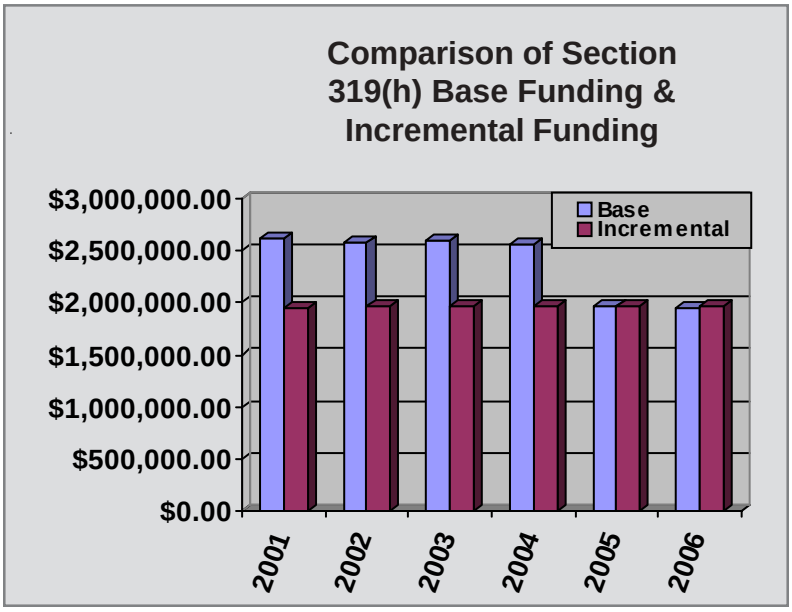
The NPS Management Program in Alabama

Section 319(h) of the Clean Water Act authorizes federal grant funding to implement EPA-approved state nonpoint source management programs. Since 1990, the Alabama Department of Environmental Management has used Section 319 grant funding to target a wide range of NPS problems. State agencies, local governments, universities, nonprofit entities, and others are eligible to apply for Section 319 grant funding through the Alabama Department of Environmental Management. Grant funds may be used to implement best management practices, provide technical assistance, support education and outreach, and build local stakeholder capacity to restore, manage, or protect water quality. Projects that address the development and implementation of watershed management plans targeting impaired waters are a special priority.

Meeting NPS Program Goals

Alabama continues to make progress in achieving the state's NPS Management Program goals and objectives. Evidence of this progress is presented in more detail throughout this report. In general, the program is focused on promoting long-term stakeholder capacity to voluntarily implement local management measures to enhance water quality. Citizen involvement, the Alabama Clean Water Partnership, Alabama Water Watch and the development of holistic watershed-based plans are significant venues to accomplish this effort. These approaches appear to be the most appropriate voluntary means to ensure that water quality concerns are addressed in an economically achievable and environmentally protective manner.

Implementation of the Alabama NPS Management Program also involves the task of integrating a variety of environmental programs such as NPDES permitting, TMDL development, Phase II stormwater, and other federal and state programs However, the success of the Alabama Clean Water Partnership is an example of what can be accomplished to provide a collaborative and cooperative focus on a myriad of NPS interests and issues. Continuous collaboration with all resource agency providers and management program stakeholders remains a program priority.



Alabama's Total Maximum Daily Load (TMDL) Program Update

Section 303(d) of the Clean Water Act (CWA) establishes that states are to list waters for which technology-based limits alone do not ensure attainment of applicable water quality standards. This list, referred to as the 303(d) list, includes priority rankings set by the state for the listed waters. Once the impaired waters are identified, states are required to establish total daily maximum loads that will ensure water quality standards are met for each listed water, considering seasonal variations and a margin of safety that accounts for uncertainty.

Fiscal year 2006 proved to be another successful year for Alabama's TMDL Program. Major accomplishments included the finalization of the Cahaba River Nutrient TMDLs for 8 waterbody segments comprising 106 river miles. These TMDLs have been submitted to EPA Region 4 for final review and approval. In addition, ADEM received EPA approval for 3 TMDLs, namely Brindley Creek (Pathogens), Village Creek (Siltation) and Patton Creek (OE/DO). With the 3 TMDLs being approved in FY2006, the total number of approved TMDLs developed for Alabama is 131. Also in FY06, new or revised TMDLs were developed and public noticed for 11 waterbodies and 12 pollutants. Other major accomplishments within Alabama's TMDL Program included the development of Delisting Decision Reports for 8 waterbody segments and 9 pollutants. Based on recent water quality data collected by ADEM, the Department has determined that these waters meet water quality standards. Therefore, these pollutants have been removed from Alabama's 303(d) List of Impaired waters and TMDLs will no longer be needed. The subject Delisting Decisions are currently pending EPA's approval via Alabama's 2006 303(d) List. The 2006 303(d) list, fact sheet and TMDL documents can be found on the adem website at http://www.adem.state.al.us/WaterDivision/WQuality/WQMainInfo.htm.

EPA - ADEM Restoration Partnership

The ADEM Nonpoint Source Program and the EPA Region 4 Watershed Management Office are partnering to identify and restore "priority" watersheds in Alabama. The objective of the partnership is to prioritize stream segments on Alabama's 303(d) list that have been impacted by non-point sources of pollution, identify stakeholders who are willing to participate in the project, and implement on-the-ground best management practices designed to quantify water quality improvements. The general factors for selecting these watersheds include the length of the stream segment, the source of the impairments, stakeholder capacity, and historic ADEM/EPA investments.

Although the restoration, protection, and preservation of all water resources within Alabama is important, this partnership will allow limited resources to be focused on watersheds with impairments associated with nonpoint source pollution. Furthermore, while this partnership establishes these "priority" watersheds, it does not prevent resources from being targeted to other areas in the event additional data/information documents the need to implement projects in other watersheds.

As part of this partnership, the following watersheds have been identified as priority watersheds and ADEM is working to initiate restoration activities to address nonpoint source pollution in these areas:

- **Upper Tallapoosa HUC – 03150109**
  - 1004 Coppers Rock Creek
- **Lower Tallapoosa HUC – 03150110**
  - 0201 Upper Sougahatchee
  - 0204 Lower Sougahatchee
- **Upper Choctawhatchee HUC – 03140201**
  - 0502 Hurricane Creek
  - 1001 Harrand Creek
  - 0704 Hurricane Creek
  - 0602 Newton Creek
- **Escawtawba Watershed - 03170008**
  - 0205 Puppy Creek
  - 0401 Upper Big Creek
  - 0402 Big Creek Lake
- **Mobile Bay Watershed – 03160205**
  - 0202 Upper Dog River
  - 0204 Lower Dog River
  - 0304 Upper Fish River
  - 0306 Middle Fish River
  - 0307 Lower Fish River
  - 0310 Bon Secour River
- **Mulberry Fork Watershed - 03160109**
  - 0404 Cane Creek
  - 0202 Thacker Creek
  - 0201 Mud Creek
  - 0106 Eightmile Creek
  - 0103 Upper Duck River
- **Wheeler Lake Watershed - 06030002**
  - 1008 Lower West Flint Creek
  - 1004 No Business Creek
  - 1003 Middle Flint Creek
  - 1002 Crowdabout Creek
  - 1001 Upper Flint Creek
  - 0604 Town Creek
  - 0603 Middle Cotaco Creek
  - 0602 West Fork – Cotaco Creek
  - 0505 Lower Indian Creek
  - 0405 Lower Flint River – Yellow
  - 0404 Middle Flint River – Goose
  - 0307 Lower Brier Fork
  - 0306 Beaverdam Creek
  - 0305 Upper Brier Fork
  - 0201 Cole Spring Branch
  - 0105 Guess Creek

CHAPTER 2
NPS Data Collection, Assessment, and Watershed Management Plan Development

ADEM Field Operations River Basin Assessments

The ADEM NPS Unit continued the 5-year rotational river basin assessment approach in FY06. Efforts involved identifying the sources and causes of NPS impacts to water quality, and then prioritizing NPS impaired watersheds for remediation. The "second iteration" of the 5-year rotational assessment will be complete in FY06. FY06 water quality assessment efforts targeted the Escawtawpa, Lower and Upper Tombigbee, and the Mobile Basins. Completed NPS water quality assessment reports are available on the ADEM website by contacting the ADEM Field Operations Division.

2004 Southeast Alabama Basin

Basinwide Assessment

The 2004 Chattahoochee, Choctawhatchee, Chipola, and Perdido-Escambia River Basins (SE AL River Basins) Basinwide Assessment Final report has been finalized and is available on ADEM's web site. The report summarizes the results of screening-level habitat and macroinvertebrate assessments conducted at sixty-two stream reaches at risk to impairment from nonpoint sources. It also compiles the complete list of NPS priority sub-watersheds from the 1999 and 2004 SE AL basinwide assessments.

Ecoregional Reference Condition Characterization

Data from Part 2 of the Rotational River Basin Approach: Surface Water Quality Assessment of the SE AL River Basins has been used to enhance the reference condition characterization for the ecoregions of SE Alabama. These data are facilitating the development of stream nutrient criteria. Thirty-six permanent and/or candidate ecoregional reference reaches were selected for inclusion in this study. Completed assessments included eight water quality sampling events with in situ field measurements, field observations, habitat assessments (2) and collection of water samples for laboratory analysis.

Intensive biological assessments of aquatic macroinvertebrate communities and fish communities were also conducted at reference reaches as part of the FY04 NPS Screening Assessment of the Chattahoochee Choctawhatchee, Chipola, and Perdido-Escambia River Basins (SE AL River Basins). A draft report is nearing completion.

Water Quality Assessment of the Southeast Rivers and Reservoirs and Water Quality Assessment of Alabama Reservoirs for Nutrient Criteria and Total Maximum Daily Load Development

Sampling for the 2004 assessments was completed in October (FY05). Field activities commenced in April (FY04) with reconnaissance of sampling sites, followed by initiation of monthly sampling April-October for most waterbodies. During this survey, rivers, reservoirs, and reservoir tributary embayments of the Chattahoochee, Conecuh, and Pea/ Choctawhatchee River basins were intensively monitored. The Choctawhatchee, Pea, Yellow, Blackwater, Lower Conecuh, and Lower Chattahoochee Rivers were also sampled, along with the following reservoirs: West Point, Harding, Walter F. George, Gantt, and Point A. Data for these projects has been complied and a report can be found on the department's website.

2005 Alabama, Coosa, and Tallapoosa Basins (ACT Basins)

Basinwide Assessments

In response to several and monitoring requirements, ADEM revised its Basinwide Assessment methods in 2005. The revised sampling strategy is designed to meet emerging data needs of the Nonpoint Source and Total Maximum Daily Load Programs. Approximately 120 periphyton and intensive macroinvertebrate community assessments were completed within the Alabama, Coosa, and Tallapoosa River basins during 2005. Fish community surveys were completed at 37 of these stations. New fish community survey methods were implemented to provide a more comprehensive assessment of the community at each site. Monthly water quality sampling was also completed to provide the data to fully assess each site in accordance with ADEM's 2005 Listing and Assessment Methodology.

All monthly water quality sampling data, habitat, fish, and periphyton assessment information have been entered into ADEM's Centralized 2005 Water Quality, Fish Community, and Periphyton ACCESS Databases. Macroinvertebrate identifications are currently underway.

Surface Water Quality Screening Assessment of the Reservoirs and Tributary Embayments

Monthly mainstem reservoir, river and tributary embayment sampling was initiated during April 2005 and completed in October 2005. During this survey the Alabama, Coosa, and Tallapoosa River basins were intensively sampled including reservoirs and embayments along with several riverine sections. A total of 89 stations were monitored for this project each month with vertical profiles of *in situ* variables conducted at meter intervals and composite samples collected for nutrient and chlorophyll a analyses. Data compilation for these projects and transfer to the master departmental database has been completed. Ongoing efforts are being made to graph and report this data.

2006 Escatawpa, Mobile Bay, and Tombigbee Basins

Basinwide Assessments

Approximately 65 periphyton and intensive macroinvertebrate community assessments were scheduled for completion within the Escatawpa, Mobile Bay, and Tombigbee River basins during 2006. However, thirty-two of the 65 sites could not be sampled due to severe drought conditions during ADEM's established macroinvertebrate sampling period. These assessments are scheduled for completion during spring and early summer of 2007. Additionally, approximately 15 of the 40 fish community surveys scheduled as part of the 2006 EMT Basinwide Assessment have been completed due to the drought. The remaining 25 assessments will be completed during 2007.

Intensive monthly water quality sampling was also scheduled to provide the data to fully assess each site in accordance with ADEM's 2005 Listing and Assessment Methodology. These data are currently being entered into ADEM's Centralized 2006 Water Quality ACCESS Database.

Surface Water Quality Screening Assessment of Rivers, Reservoirs, and Tributary Embayments

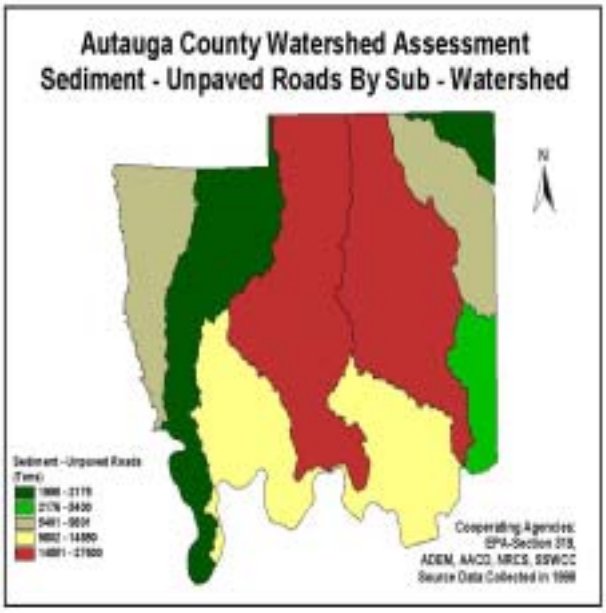
Monthly sampling of 37 river, reservoir, and embayment sites was conducted April-October 2006. This survey included the Lower Tombigbee River and the following reservoirs and their embayments: Aliceville, Gainesville, Demopolis, Coffeeville and Big Creek. Data from vertical profiles of *in situ* variables conducted at meter intervals and composite samples collected for nutrient and chlorophyll a analyses will need to entered and QA'd. All efforts will be made to have this task completed and transferred to the departmental database by Jan 2007.

Alabama's Statewide Watershed Assessments

ADEM and the Alabama Soil and Water Conservation Committee, using Section 319 and state cost-share funding, continue their 5-year cycle of assessing watersheds in every county in Alabama using locally-led citizen advisory groups. Several federal, state, and local stakeholders use this "assessed" information to fill in gaps of "monitored" data; to prioritize management site/area needs and efforts; and to develop/implement watershed management plans.

In August 2006, training for field personnel and associated cooperators was conducted for the next round of assessments. Data is being collected between September and December 2006. Public meetings will also be conducted as the counties complete their data-gathering efforts, in order to form Watershed Protection Committees and develop Plans of Action to target watershed problems. The completed assessments are scheduled for completion in Spring 2007.

Data from the assessments will be available online in a new updated database on the Soil and Water Conservation Committee website. The data will be used to meet requirements by EPA to complete a Statewide Nonpoint Source Watershed Assessment every 5 years, to serve the State and local units of government as an evaulative tool for resource needs and concerns, to meet the goal of the NRCS to address resource concerns on a watershed basis, and to provide vital information to ADEM to help identify water sampling needs and develop reports.

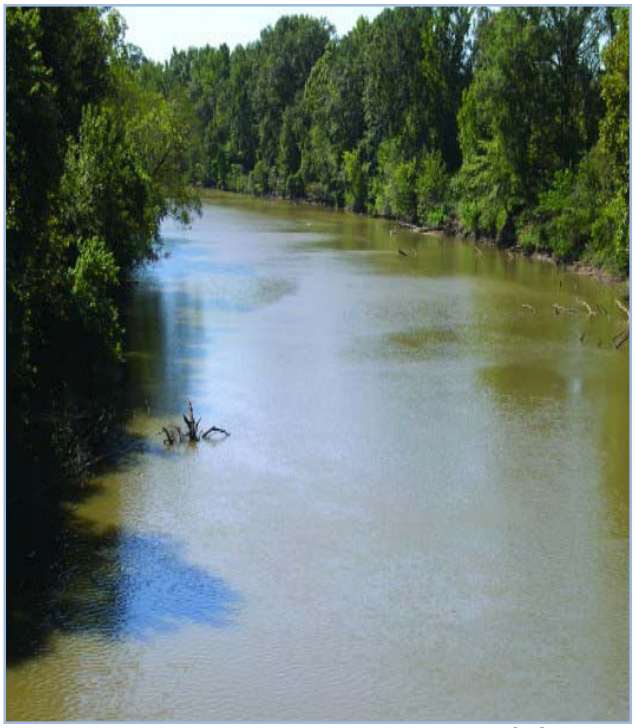


County map prioritizing watersheds that have the most sediment from dirt roads. This map was developed from the data gathered in the prior assessment.

Watershed Management Plans Update

Alabama utilizes a watershed management approach as a tool for nonpoint source pollution assessment and prioritization of water quality issues, development of strategies and solutions, and opportunities for targeted, cooperative actions to achieve water quality goals. One of the key elements of the watershed management approach is the development of watershed management plans. Section 319 funds are used to develop and implement watershed-based plans in watersheds that target Section 303(d) listed waters and TMDLs.

In Alabama, basin management plans will be completed for all the major river basins in the state by the end of 2006 (The Chattahoochee-Chipola River Basins Plan is the only plan still in draft.) These plans have been very essential for helping in the formation of diverse, well integrated partnerships; in giving better geographic focus; in gathering concerns and collecting resource and water quality data; and in producing management stategies on a basin level. In order to address TMDLs and impaired waterbodies, smaller scale watershed management plans are being developed and implemented. The partnerships formed and data collected for the larger basin plans are used in the formulation of the smaller watershed plans.



Cahaba River

Yellow Bank Creek Watershed Management Plan Identified as One of the Best in the Nation

A recent EPA report named Alabama's Yellow Bank Creek Watershed Management Plan as one of the six best watershed management plans in the nation. ADEM submitted the plan to EPA as part of a study to evaluate how states, and their stakeholders, are developing high-quality watershed management plans and to identify plans that meet or exceed EPA's nine key elements for effective watershed-based planning. The six month study was conducted by EPA's Office of Wetlands, Oceans and Watersheds and included the submission of 44 watershed management plans by various states. The development of the plan was a collaborative effort between ADEM, Madison County Soil and Water Conservation District, Tennessee Valley Authority, and watershed stakeholders.

EPA said the Yellow Bank Creek Watershed Management Plan "provides a fine example of watershed-based planning." The study also noted that the plan contains a good case of how the SWAT computer model "can be used to develop pre- and post-BMP implementation scenarios to estimate pollutant load reductions" and how this process could be "easily adapted to other watersheds." EPA also highlighted the fact that the plan contains an "excellent budget section that estimates current and future management needs."

The Yellow Bank Creek Watershed Management Plan identifies the problems/causes of nonpoint source pollution in the watershed, provides an estimate of the load reductions that are necessary to enhance water quality, and provides a summary of the best management practices that need to be implemented to address nonpoint source pollution in the watershed. The plan also contains an educational component that can be used to enhance public awareness of nonpoint source pollution and encourage active participation by local citizens who live, work, and recreate within their watershed.

The Yellow Bank Creek Watershed, located in the Tennessee River Basin, has been identified on the Section 303(d) List of Impaired Waters (1998, 2000, 2002, and 2004) as partially supporting of its Fish and Wildlife Classification due to low dissolved oxygen. The TMDL sources of impairment are agriculture and urban runoff/storm sewers. There are no contributing NPDES point sources in the watershed.

The Madison County Soil and Water Conservation District is currently implementing the watershed protection plan using Section 319 grant funds. Other local, state, and federal resources are also being used to install on-the-ground best management practices to address the causes and sources of water quality impairments. Best management practices include streambank protection, critical area planting, and livestock exclusion practices such as fencing, rotational grazing, alternative water supply, and stream crossings. A watershed project coordinator facilitates citizen education and outreach and ensures that conservation plans are in-place for all landowners receiving state or federal cost-share assistance.

A copy of the Yellow Bank Creek Watershed Management Plan can be viewed on the ADEM web-page at www.adem.alabama.gov.

River Basin Management Plans

The Department has provided technical resources and oversight to complete the development of river basin management plans for the following Alabama waterways. The development of these river basin management plans encompasses 44,338.04 square miles/ 28,393,928 acres of Alabama waterways.

- Middle Coosa River Basin (03150109) — 2,584.94 sq. miles/1,654,373 acres
- Upper Coosa River/Weiss Lake (03150105) — 8,51.95 sq. miles/545,259 acres
- Tennessee Valley River Basins (06020001, 06030001, 06030002) (06030003, 06030005, 06030006) — 6,825.85 sq. miles/4,368,535 acres
- Cahaba River Basin (03150202) — 1,818.08 sq. miles/1,163,571 acres
- Black Warrior River (03160109, 03160110, 3160111) (03160112, 03160113) — 6,288.19 sq. miles/4,024,423 acres
- Coastal Alabama Basin (03160204, 03160205, 03170002, 03170003) (03170008, 03170009, 03140106, 03140107) — 3,695.51 sq. miles/2,365,315 acres
- Tallapoosa River Basin (03150108, 03150109, 03150110) — 4,023.86 sq. miles/2,575,265 acres
- Alabama River Basin (03150201, 03150203, 03150204) — 4,747.42 sq. miles/3,038,361 acres
- Upper and Lower Tombigbee River Basins (03160103, 03160105, 03160106, 03160201) (03160202, 03160203, 03160107, 03160108) — 7,570 sq. miles/4,844,648 acres
- Lower Coosa River Basins (03150107) — 1,963.29 sq. miles/1,256,511 acres
- Conecuh, Sepulga, and Blackwater River Basins (3140104, 3140301, 3140304) (3140302, 3140305, 3140303) — 3,996.33 sq. miles/2,557,667 acres

The Department is currently working with stakeholder groups on the development of a river basin management plan for theChattahoochee-Chipola River Basins. The basin plan is scheduled to be completed by the end of 2006.

- Chattahoochee/ Chipola River Basins (3130002, 3130003, 3130004, 3130012) — 2,829.5 sq. miles/1,810,871 acres

Sub-basin Management Plans

Due to recent changes in EPA's approach to holistic watershed management, and subsequent changes in EPA guidance, the Department has recently focused its resources on the development of watershed management plans for smaller, sub-basin watersheds. The Department is working with stakeholders in the following Alabama watersheds to develop these sub-basin management plans. As per Section 319 workplans, these sub-basin watershed management plans are in various stages of completion but the work is on schedule. These plans will incorporate, as applicable, EPA's nine key elements (a-i) and will encompass 1,393,556 acres of Alabama waterways.

Black Warrior (82,734 Acres)

- Dry Creek (031601110203) 12,648.140 acres
- Thacker Creek (031601090202) 9,662.646 acres
- Long Branch (031601090303) 19,752.694 acres
- Black Branch (031601090602) 40,670.980 acres

Coosa Basin (443,531 Acres)

- Middle Coosa
  - Towne Creek (03150106-040) 24,636 acres
  - Big Cove Creek (03150106-030) 51,203 acres
  - Greens Creek (03150106-130) 26,911 acres
  - Dye Creek (03150106-200) 79,680 acres
  - Upper Big Canoe Creek (03150106-100) 124,917 acres
  - Upper Kelly Creek (03150106-300) 111,565 acres
  - Easonville Creek (03150106-290) 24,619 acres

Mobile Basin

- Wolf Bay
- Weeks Bay

Tallapoosa Basin (108,482 Acres—Sougahatchee Only)

- Lake Wedowee
- Sougahatchee Creek (031501100201, 031501100204, 031501100203)

Tennessee Basin (758,800 Acres)

- Cotaco Creek (060300020601, 060300020603) 72,733.242 acres
- Eight-Mile Creek (031601090106) 1,140.866 acres
- Cypress Creek (06060005-180/060605-200) 96,077 acres
- Short-Scarham Creek (060300010803) 75,672.56 acres
- South Sauty Creek (060300010601) 62,774.164 acres
- Town Creek (060300020604) 23,436 acres
- Mack Creek-Robinson Creek (060300021001) 35,445.632 acres
- Second Creek/First Creek (060300021202, 060300021203, 060300021204) 43,738.989 acres
- Paint Rock (06030002-100) 93,154 acres
- Guess Creek (060300020105) 21,818.536 acres
- Little Paint Rock (060300020203) 36,196.456 acres
- Cole Spring Branch (060300020201) 3,110.322 acres
- Brier Fork (060300020307, 060300020305) 39,103.584 acres
- Beaverdam Creek(06030002-180) 28,187.779 acres
- Upper Bear Creek (060300060103) 78,220.084 acres
- Middle Flint River (060300021003) 41,783.358 acres
- Yellow Bank (06030002-210) 6,208 acres

CHAPTER 3
Watershed Implementation Activities

The Nonpoint Source Management Program continues to focus on the development and implementation of watershed management plans. The implementation of these watershed management plans is the cornerstone of the Department's effort to enhance water quality and facilitate the removal of water bodies from the 303(d) List. The projects identified in this chapter are the culmination of numerous meetings between ADEM staff and a wide-range of stakeholders/landowners to identify problem areas and initiate restoration activities to enhance water quality.

Best Management Practices Result In OE/DO Delisting of the Lower Flint River

In 1995, biological testing by the Tennessee Valley Authority identified the Flint River in Madison County, Alabama as impaired due to siltation, nutrients, and organic enrichment. Based on this data, a 28-mile segment of the Flint River was placed on Alabama's 1998 303(d) List of Impaired Waters for organic enrichment/dissolved oxygen impairments (OE/DO). The segment has remained on subsequent 303(d) Lists that were compiled in 2000, 2002, and 2004.

Alternative watering sources for cattle

A State Soil and Water Conservation District Watershed Assessment in 1998 also noted a high potential for sediment and nutrient run-off from row cropping, pasture grazing, and urbanization in the Flint River Watershed. Because runoff from agricultural activities and urbanization were identified as sources of the OE/DO impairments, federal, state, and local agencies, as well as local landowners, partnered to implement watershed conservation and restoration initiatives.

Various agricultural best management practices has been implemented including conservation tillage, cropland conversion, conservation cover crops, terrace systems, sediment basins, livestock exclusion fencing, alternative watering sources, and livestock stream crossings. In addition, education and outreach activities were conducted, including stream clean-ups, local school presentations, landowner/public meetings, field days, and coverage by the local news media. A Section 319 grant from ADEM provided $250,000 to support a watershed coordinator and to implement the on-the-ground best management practices. Stakeholders contributed an additional $331,000 in matching funds through gifts or in-kind services. These stakeholders included the Madison County Soil and Water Conservation District, the USDA Natural Resources Conservation Service, the Tennessee Valley Authority, the Flint River Conservation Association, and the City of Huntsville. The total cost of the project was $581,000.

ADEM performed extensive water quality monitoring on the Flint River consisting of data collection once a month from March through October in 2003 and 2005. ADEM also collected continuous dissolved oxygen data in July 2005. Only two monthly measurements (4.6-mg/L and 4.97-mg/L) were below the minimum 5.0-mg/L dissolved oxygen criterion for the designated water use classification. Furthermore, none of the continuous dissolved oxygen measurements were below the minimum 5.0-mg/L criterion. Therefore, water quality data indicates that this segment of the Flint River now meets the water quality standards associated with its designated use classifications (Public Water Supply/Fish & Wildlife) and ADEM has proposed its removal from the 2006 303(d) List of Impaired Waters.

Point A-Gantt Lake Sedimentation Reduction Project

Due to the nature of the highly erosive sandy soils in the Choctawhatchee Basin, sedimentation from dirt roads is a major problem in Point A and Gantt Lakes. As a result, the lakes are listed as impaired on the Department's 303(d) list.

The Point A-Gantt Lake Sedimentation Reduction Project was designed to target this problem and is in the final stages of completion, with BMP construction and installation at five sites completed on September 30, 2006. It is estimated that the installation of best management practices will reduce sediment loading from 2,250 tons to 38 tons per year into Point A and Gantt Lakes. Best management practices installed on these road sites include curb and gutter installation on steep slopes, bank shaping, planting of vegetation, rock flumes, drop inlets, and crusher run applications to the road surface.

Brogden Road prior to project implementation

Brogden Road after project implementation

Herrin Creek and Crowdabout Creek Watershed Projects

Implementation of the watershed management plans and best management practices continue in both the Herrin Creek and Crowdabout Creek watersheds through cooperative projects with Flint Creek Conservancy District. In the Herrin Creek Watershed, approximately 90 acres of riparian forest buffer have been planted along of 3 miles of stream and an additional 9 acres of hardwood vegetation installed on land within the watershed. In the Crowdabout Creek Watershed, a total of 411 acres has been converted to riparian forest buffer resulting in a total of 10 miles of stream being protected. Nearly 27 acres of hardwood vegetation has also been installed on land within the watershed. These practices will target the nonpoint sources and causes of impairment, including organic enrichment/low dissolved oxygen, nutrients, pH, ammonia, pathogens, and siltation.

Cattle Stream Crossing

Mack/Robinson Creeks Watershed Project

The Mack Creek and Robinson Creek watersheds are located within the Tennessee River Basin in north central Alabama. Both watersheds are listed on the Alabama Section 303(d) list for impaired waters. Pasture grazing is the listed cause along 5.4 miles of Mack Creek. Agriculture is listed as the cause along 6.3 miles of Robinson Creek. The primary land uses include pasture grazing, row crops, and hay production.

The goal of the watershed management plan is to reduce sediment and nutrient loads that impair water quality in Mack and Robinson Creek, thus removing both segments from the Section 303(d) List of Impaired Waters. In July 2003, a project coordinator was retained to oversee the implementation of the project and a Watershed Management Plan was drafted in January 2004. During this same time a water quality monitoring program began in the watersheds to track anticipated improvements in water quality. A number of Best Management Practices have been implemented including riparian forest buffer planting, pasture planting, installation of alternate water sources, and hardwood planting. Approximately 388 acres of riparian buffer areas have been installed along nearly 8.15 miles of stream. Over seventy-seven (77) acres have also been planted in pasture, hardwoods, and native grasses.

Crowdabout Creek Watershed Project

Crowdabout Creek is identified on the 1996, 1998, and 2000 CWA Section 303(d) list of impaired waterbodies as not supporting its water use classification of Fish and Wildlife. A Draft TMDL for organic enrichment/dissolved oxygen, nutrients, and pathogens was developed in August 2003 and a Final TMDL was approved in September 2003. A Draft TMDL for siltation was developed in February 2002 and a Final TMDL was approved in October 2003.

A watershed mangement plan was submitted to the Department in December 2004. Under the plan, nearly 100 acres have been planted in riparian forest buffer zone resulting in the protection of nearly three miles of streambank. In addition to implementation of riparian buffers, 3 acres of hardwood trees have also been planted. Interest in the incentive payments is growing and landowners are inquiring to determine if their land applies. Seventy-five percent of the remaining funds should be allocated to participating landowners within the next year.

Bear Creek Watershed Project

Although project implementation has ended, the Franklin County Soil and Water Conservation District continued to work with the Bear Creek Watershed Project to target problems associated with nonpoint source pollution and educate the public about nonpoint source pollution problems. The watershed coordinator promotes nonpoint source pollution education through a variety of ongoing programs including Alabama Envirothon, Alabama Water Watch, and Cool Runnings. A watershed plan for Harris Creek in Franklin County, has also been developed with assistance from the coordinator, NRCS and TVA, and a BMP implementation project is currently being developed for this watershed.

Students from Phil Campbell High School participate in the Bear Creek Watershed Project's Cool Runnings program.

Brier Fork and Beaverdam Creek Watershed Project

Located in Madison County, the Brier Fork/Beaverdam Creek watershed is just north of Huntsville, Alabama. The watershed lies within the Wheeler Lake watershed of the Tennessee River Basin. Both Brier Fork and Beaverdam Creek are tributaries to the Flint River. Brier Fork is listed on the Section 303(d) list as impaired from Flint River to the Alabama-Tennessee State line (20-mile segment) while Beaverdam Creek is listed on the Section 303(d) list as impaired from Brier Fork to its source (19-mile segment). The main goal of the Brier Fork and Beaverdam Creek Project is to develop watershed-based plans and implement best management practices for addressing TMDL sources and causes. These projects are designed to bring Brier Fork and Beaverdam Creek into compliance with state water quality standards.

A kickoff meeting was held locally in the watershed community on February 28, 2006. A continuous sign-up was announced and advertised. To date, thirty-two applications have been accepted with eighteen of these applications for BMPs to reduce erosion and sedimentation. Since the beginning of the project, two terrace systems and five sediment basins have been installed. Also, two fields totaling 18.5 acres, have been converted from conventionally tilled row crop ground to permanent hay fields. Additional farm visits have been performed, conservation plans and contracts have been created, and many landowners are ready to implement BMPs on their land in the near future.

Yellow Bank Creek & Goose Creek Watershed Projects

Yellowbank Creek and Goose Creek are located in Madison County and are tributaries of Flint River in the Tennessee River Basin. Yellow Bank Creek has a drainage area of 9.27 square miles and Goose Creek has a drainage area of 11.8 square miles. The primary land uses within both watersheds are agriculture and urban with about fifty percent of the watershed forested.

Heavy-Use Feeding Area in the Yellow Bank Creek Watershed

The main goal of the Goose Creek and Yellow Bank Creek Projects is to develop watershed-based plans and implement best management practices for addressing TMDL sources and causes. These projects are designed to bring Goose and Yellow Bank Creeks into compliance with state water quality criteria.

A continuous sign-up has been announced and applications are currently being taken. Currently, thirteen applications have been taken from landowners and farmers within the Yellow Bank Creek watershed and fourteen applications from within the Goose Creek watershed. To date, ten heavy use areas, 7 alternative watering facilities and 3,884 feet of fencing have been installed in these two watersheds. In addition, 330 acres of pasture has been planted and approximately 1,000 acres of cropland was planted in a winter cover crop with conservation tillage methods. Three livestock producers have implemented rotational grazing on their farms.

The Catoma Creek Watershed Project

The Catoma Creek Watershed, located mostly within Montgomery County, covers about 360 square miles and drains to the Alabama River. The rural portion of the watershed covers about 258 square miles. The remaining portion of the watershed, 102 square miles, is urban/suburban associated with the City of Montgomery. The Catoma Creek Watershed has been identified by the Section 303(d) list of impaired waters as not meeting state water quality standards due to pathogens and nutrient enrichment.

This project consists of implementing several components of the *Catoma Creek Watershed Management Plan* including on-the-ground improvements to reduce erosion, providing a riparian buffer, improving aquatic habitat, performing water quality/biological habitat monitoring to assess the benefits of on-the-ground management measures, and providing nonpoint source pollution education and outreach. Most of the on the ground BMPs have been completed, with practices to include alternative watering sources, fencing, heavy use area protection, livestock exclusion, crop rotation, contour farming, critical area management, and lagoon closeout and renovation.

The biological, chemical, physical, and habitat conditions are being monitored and analyzed in various Catoma Creek watershed tributaries by the MWW&SSB and AUM scientists during the project duration. Water quality monitoring takes place no less than a monthly basis at 13 standard sites, which are located throughout the watershed. Sampling tests have also been established around each BMP site. The project coordinator and committee members also continue to work with Auburn University researchers on a bacterial source tracking study to help determine the sources of pathogens in Catoma Creek.

The Cotaco Creek Watershed Project

The Cotaco Creek watershed encompasses 268.9 square miles, comprised of 176,376 acres with 84.1% in Morgan County, 13.9% in Marshall County and 2% in Cullman County. The watershed is comprised of 47% forests, 44% pastureland, 5% cropland and 4% classified as "other". The Cotaco System is listed as a state priority watershed in the Alabama Unified Watershed Assessment Report in addition to being listed on the state's 303(d) report. Town Creek, Cotaco Creek, and West Fork Cotaco Creek are listed on the 303(d) list because of organic enrichment/dissolved oxygen and pathogens, with agriculture identified as the main source of these problems. To date, nine contracts have been completed. The BMPs from these nine contracts include alternative watering sources, fencing, heavy use area protection, livestock exclusion, and dry stack composters.

Heavy Use Area and Alternative Watering Source for Cattle

Dekalb County Watershed Projects

DeKalb County Watershed Projects

The four watershed projects that are currently being implemented in DeKalb County by the Natural Resources Conservation Services in Marshall and DeKalb counties, the DeKalb Soil and Water Conservation District, and the Tennessee Valley Authority include: The Short-Scarham Watershed Project, the South Sauty Watershed Project, the Town Creek Watershed Project and the Upper Coosa Watershed Project. The primary concerns within the watersheds as cited by the locally led advisory group were: excessive animal waste applied to land; inadequate livestock water for proper rotation of grazing animals; nutrient, bacteria, and low dissolved oxygen in surface water and groundwater; and erosion and sedimentation from cropland areas. The remediation of problems in non-irrigated crop production, animal feeding operations, failing septic systems and pasture grazing are being targeted within these watersheds. Problem areas within the watersheds were identified using the Soil and Water Conservation District's Watershed Assessment and TVA's Integrated Pollutant Source Identification Model (IPSI) Model. The IPSI modeling will help concentrate funds in problem areas to ensure maximum benefits.

In order to implement a dynamic and effective project designed to achieve and maintain beneficial uses of water, maintain water quality standards, and facilitate removal of the watersheds from the CWA 303(d) list, a watershed restoration action strategy was developed before implementation of any BMPs. These 319 proposals have resulted in the implementation of better pasture management to reduce runoff of nutrients to area waterways, restriction of livestock to direct access to area streams via the use of alternative water sources, such as wells and troughs, and the development and implementation of nutrient management plans by poultry producers.

Upper Coosa River Watershed Project: To date, 26 applications have been approved for this area, and sign-up is still open. In addition, applications are being taken for remediating septic system problems and work engaging respective area health departments continues. During the current reporting period, 100 feet of pipeline, 3,238 feet of fencing, and three alternative watering sources for cattle have been installed.

Short-Scarham Creeks Watershed Project: To date, 22 applications have been approved for this watershed. Several practices have been completed throughout the project to include livestock exclusion and conservation tillage among others, During the current reporting period, three dead poultry disposal freezers, one alternative watering source for cattle, one well, and 200 feet of fencing were installed. In addition, 200 acres of cropland were converted from conventional tillage to conservation tillage.

Town Creek Watershed Project: To date, 24 applications have been approved for this area. During this project, several practices including dry stack construction, livestock exclusion, alternative watering sources installation, and the seeding of pastureland have been completed. During the current reporting period, one dry-stack, one pond, three poultry disposal freezers, two alternative watering sources for cattle, and 1,000 feet of fencing have been installed.

South Sauty Creek Watershed Project: To date, 20 applications have been approved. Several practices have been completed which include incinerators, seeding, cross fencing, alternative watering sources, and water pump installation. During the current reporting period, two alternative watering sources, 8,579 feet of fencing, three dead poultry disposal freezers, and one dry stack have been installed.

Alternative Watering Source for Cattle

The Middle Coosa River Watershed Project

The Middle Coosa Watershed Project, which encompasses all areas that drain into the Neely Henry or Logan Martin Lake, ended in May 2006. The overall goal of this project was to effectively focus federal, state, local, and special interest groups' resources on solving predominately rural and urban NPS pollution problems. The Middle Coosa Watershed Project workplan encompassed two contracts; one with Gadsden Water Works and one with Etowah and St. Clair Counties Soil and Water Conservation Districts. Most of the urban projects were completed under the GWW plan and agriculture BMPs were completed under the Districts contract.

The Middle Coosa River Watershed Project installs a bioretention area at Eden Elementary School in Pell City.

The installation of urban BMPs was a high priority for the Middle Coosa River Watershed project since the watershed's total population exceeds 200,000 people. Bio-retention areas have been installed in several visible areas throughout St. Clair and Etowah Counties. Two separate stream restoration projects, one at North Gadsden Park and another at Waldrup Farms, provide great demonstration sites. Several tours as well as professional workshops have already taken place at these sites. The James D. Wildlife Park located at the Gadsden Mall was identified as an area of concern for water quality issues. Seven hundred eighty-five feet of curb were removed and approximately three feet of gravel were placed to slow the flow of water from the parking lot. Behind the gravel, native shrubs were planted to provide a root structure for the grass and soil and to serve as a pollutant filter. In addition, a rain garden was installed for one corner of the parking lot where most of the runoff drains. This rain garden will be used to clean up the parking lot runoff before it enters the water of the wildlife park, thus removing 60% of the pollution from the runoff. The Middle Coosa River Watershed Project worked with the Pell City School System to create a parking lot with bioretention areas surrounding it.

Education of the stakeholders was a priority, with presentations given on topics such as septic tanks, NEMO, restaurant responsibility, and river clean-ups. Additional educational activities include the Water Festivals in both Etowah and St. Clair Counties. The Project Coordinator has worked with the Boy's and Girl's Club, a Girl Scout Troup, 4-H Clubs, school groups, and others to mark storm drains throughout Etowah County. The Coordinator was also involved with Alabama Power and Keep Etowah Beautiful's annual "Renew Our Rivers (Neely Henry) campaign and assisted with their "Message in a Bottle" campaign.

One of the successful education projects in the Middle Coosa is the Business Partners for Clean Water program. This program, which began as a cooperative effort between the Gadsden Water Works and Sewer Board, the Etowah and St. Clair Counties Soil and Water Conservation Districts, ADEM, the Alabama Clean Water Partnership and local businesses, has been adopted by the Middle Coosa River Watershed Project. It is designed to give businesses the information they need to comply with water quality laws and to recognize businesses that take voluntary steps to protect local streams and lakes. Watershed partnership signs were distributed to all groups that are part of the Business Partners for Clean Water as well as to all farmers that participated in the cost-share program.

Workshop particpants look at the installed raingarden which removes 60% of the parking lot runoff.

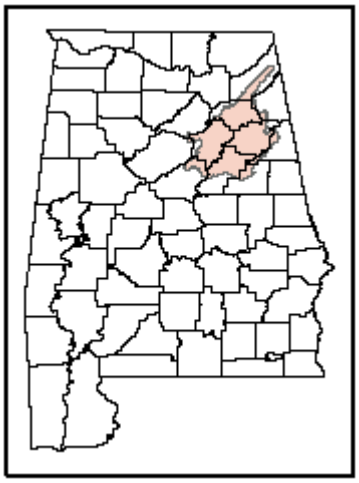
In addition to the previously mentioned projects, more than 165 cost-share applications for agricultural BMPs were approved with practices including the installation of heavy-use area protection, alternative water sources, critical area protection, and cross fencing.

Also as part of the urban stormwater protection activities, the coordinator worked with the City Planner, the Associate City Planner, the City Engineer, the City Attorney, the Gadsden Water Works General Manager, and a private engineer to propose Storm Water Ordinances for the City of Gadsden. This ordinance was passed and adopted by the city council in 2005.

The Middle Coosa River Watershed Project (Priority Subwatersheds)

The Middle Coosa River Watershed encompasses approximately 2,571 square miles in the Northeast section of Alabama. The Middle Coosa River Watershed has been identified by the Section 303(d) list of priority waters as not meeting state water quality standards. Primary watershed concerns cited by the locally led advisory groups were primarily related to agriculture, however increased development pressures related to urban sprawl from the City of Birmingham, Pell City and City of Gadsden are increasingly threatening the watershed.

The Etowah County and St. Clair County Soil and Water Conservation Districts were granted a Middle Coosa Priority Subwatershed Project after successfully completed a Watershed Project in May 2006. This new project will concentrate on priority subwatersheds within the Middle Coosa Watershed. These watersheds, identified as most degraded by the 1998 Watershed Assessment, are Towne Creek, Big Cove Creek, and Greens Creek in Etowah County along with Dye Creek, Upper Big Canoe Creek, Upper Kelly Creek and Easonville in St. Clair County. The Project will provide cost-share funds to implement best management practices within these Subwatersheds. A sign-up is planned for the beginning of 2007.



A Project Coordinator has been hired to organize and promote public support, provide oversight of project activities, implement education and outreach measures to education landowners, and organize community-based stakeholder committees to help identify and prioritize BMP implementation sites. In November, the Project Coordinator partnered with the Coosa Basin Clean Water Partnership Facilitator to host Middle Coosa Stakeholder meetings. Middle Coosa Watershed Stakeholders were introduced to the Clean Water Partnership and the Middle Coosa Watershed Project. Mike Jones, ADEM Nonpoint Source Unit, and David Thompson, ADEM Water Quality Branch, gave updates and stakeholders were briefed on the current Watershed Assessments.

CHAPTER 4
NPS Education, Outreach, and Technology Transfer

One of the many goals of Alabama's Nonpoint Source program is to educate Alabama citizens about NPS pollution and best management practices that can be implemented to reduce and control polluted runoff. Through the years, various outreach program's have been developed and implemented as different needs have arised and changed. This chapter focuses on giving an update of some of the most successful and enduring education and outreach programs.

NEMO II

This past year Alabama's Nonpoint Source Education for Municipal Officials (NEMO) Project coordinators began focusing on establishing projects on the ground that would follow the Growth Readiness concepts established in 2005. In April 2006, ADEM and the Alabama Cooperative Extension System (ACES) partnered with the Southeast Watershed Forum in a conference for the southeastern states to evaluate their NEMO programs and identify how to work more closely together adapting methods and resources. Also, both state NEMO coordinators attended the October annual meeting of the National NEMO program in Connecticut in order to network and share resources and ideas with other states.

During the year, two NEMO training sessions were held at ADEM for stormwater managers and educators, with approximately 60 people being trained. A project is also in the planning stage for a subdivision in Lee County that will demonstrates NEMO principles. Foresters, city planners and a landowner are working together on the types of stormwater BMPs that will be placed on the ground.

Red Water Blues Field Days

Red Water Blues Field Days are training events designed to assist contractors, site planners, designers, inspectors, city councilmen, and county commissioners in learning more about erosion and sediment control on construction sites. A variety of construction sites are used to illustrate the proper installation and maintenance of best management practices, in addition to new innovations in best management practices.

Red Water Blues Field Day in Auburn , AL

In February 2006 an updated version (Revision One) of the *Erosion and Sediment Control (ESC) Handbook* was printed and distributed to stakeholders. Currently, the ESC Committee is incorporating changes to the entire handbook into one file for later distribution to stakeholders. Further, work is underway to place the Handbook on the Alabama Soil and Water Conservation Committee website (http://www.swcc.state.al.us).

In March 2006, 500 copies of the *Field Guide for Erosion and Sediment Control on Construction Sites in Alabama* were printed for Thompson Engineering. The Field Guide covers 26 of the most commonly used erosion and sediment control practices contained in the Handbook.

On September 14 and 28, 2006 the annual *Red Water Blues* Field Day was held in Tuscaloosa (Bobby Miller Activity Center) and Auburn (Agricultural Heritage Park), respectively. The field days involved a half day training session to observe erosion and sediment control practices and products. In addition, Qualified Credentialed Inspectors (QCI'S) received continuing education credits by attending the field day and an early morning session presented at the registration site by the Home Builders Association of Alabama.

To supplement the training, the Field Guide for Erosion and Sediment Control on Construction Sites in Alabama and the Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas were distributed at the training events. To date, 9,500 copies of the Field Guide and 830 copies of the Handbook have been distributed since the project began in 2003.

Sponsors of the training events include the Alabama Department of Environmental Management, the Alabama Soil and Water Conservation Committee, the Alabama Chapter - Soil and Water Conservation Society, the Alabama Association of Conservation Districts and local districts, the Alabama Association of RC&D Councils and member Councils, the Alabama Department of Transportation, Associated General Contractors of Alabama, the Home Builders Association of Alabama and the USDA Natural Resources Conservation Service.

The Alabama Clean Water Partnership

The Alabama Clean Water Partnership (ACWP) is based on the watershed approach, working across political boundaries and linking point and nonpoint source interests together to safeguard water quality. Clean Water Partnership Basin Facilitators, in conjunction with individual basin sponsors, are in place across the state, coordinating activities in ten major watersheds, including the Coosa, Tallapoosa, Cahaba, Alabama-Tombigbee, Chattahoochee-Chipola, Choctawhatchee-Pea-Yellow, Conecuh-Sepulga, Tennessee, Black Warrior, and Coastal basins. A statewide, nonprofit, 501(c)(3) organization, the Alabama Clean Water Partnership has also been established to promote the effort and identify funding for water quality projects across the state. A steering committee, comprised of stakeholders representing basin-wide interests, is in place within each major river basin to facilitate communication and the exchange of information, and to provide vision for the protection and restoration of Alabama's rivers.

On-the-ground projects in the river basins across the state are key to the success of improving water quality, increasing the visibility of the ACWP and providing stakeholders with ownership of the process. The following are project highlights from both the statewide level and from the ten Clean Water Partnership basins across the state:

Statewide:

- **"What's in *YOUR* Water?" 5th Grade Curriculum –** This project, targeting Alabama's 5th grade students and teachers, is a week-long classroom activity, designed to reinforce concepts currently being introduced to fourth grade students at water festivals across the state, and is based on the "Watershed in a Box" activity previously included in Legacy's Water Source Book. The activities, correlated to the Science, Social Studies, and Language Arts 5th Grade Courses of Study, cover topics on the water cycle, watersheds, personal pollution, sediment pollution and ecosystems, concluding in a writing activity. The ACWP has received two challenge grants from the AL Forests Forever Foundation totaling $17,500, which provides half the cost of the workbooks for teachers, with local donors providing the other half. Local donors have included the Coosa Valley RC&D Council, various Soil & Water Conservation Districts, MeadWestvaco, the Alabama Bass Federation and assorted others. Allison Jenkins and other trainers across the state work with local contacts to teach the curriculum at Teacher In-Service Workshops and other events for teachers in their local school districts.
- **Basin Newspaper Inserts –** Previously published by the ACWP and inserted into thousands of newspapers in the Lower Coosa, Alabama and Tombigbee basins as a public educational document and follow-up synopsis of the basin management planning process, these low-cost inserts have proven a cost effective way to educate the public and recruit new stakeholders to the water quality arena. The many uses of water and sources of nonpoint source pollution are highlighted in the inserts, along with specific information on local watersheds and watershed success stories. The ACWP is currently identifying sources of funding to publish inserts in each of the ACWP delineated river basins across the state, which should be published starting in late spring of 2007.
- **Low Impact Development (LID) Practices with Homebuilders –** Allison Jenkins is working with the statewide Homebuilders Association of Alabama to identify specific builders in the watersheds and basin across the state where these innovative LID practices might occur, increasing water quality in the basin and providing the builder/developer with positive public relations in the local community.

Alabama-Tombigbee

- **Montgomery Business Partners for Clean Water Kick-Off Project-Southern Homes & Gardens Riparian Zone -** The Alabama-Tombigbee and the Tallapoosa Clean Water Partnerships, Auburn University Department of Landscape Architecture, the City of Montgomery, and Southern Homes & Gardens are pursuing a riparian zone restoration project at the Southern Homes & Gardens site. The project will be used to publicize the Montgomery Business Partners for Clean Water project that the Upper Alabama CWP and the City of Montgomery are beginning. The Landscape Architecture Department designed an educational riparian zone and a World Wildlife Fund grant was written in October for installation. Southern Homes and Gardens will then be designated as the first Landscape/Nursery Montgomery Business Partner for Clean Water.
- **Prattville Business Partners for Clean Water-Homebuilders -** With partners including the City of Prattville, the Prattville Area Chamber of Commerce, the NRCS and the Autauga County SWCD, the CWP held the first training session for builders on August 29. Twenty-one builders, developers and engineers attended the training and were designated Business Partners for Clean Water. The training session included topics such as advanced stormwater BMPS, how trees help water quality and low impact development.
- **Sedimentation and Property Loss in the Lower Tombigbee River Basin-Musser Grant -**
  The Laura Jane Musser Fund awarded the Alabama-Tombigbee CWP a $30,000 grant to fund a project called Dispute Resolution: Erosion and Property Loss along the Tombigbee River. The project consists of a series of meetings to educate stakeholders about all issues that are related to erosion along the Lower Tombigbee River. An additional facilitator, Wade Riggs, has been hired to undertake this project. Four meetings have been held with a total of 124 in attendence. Each person was allowed time to discuss his concerns about erosion and property loss in the Lower Tombigbee River basin. After the education process has been completed, the stakeholders will complete an action plan that formulates the next steps to resolve this issue.

Black Warrior

- **Greenways Showcase -** On November 7th, 49 participants viewed presentations on all active greenway projects within Jefferson County. Immediate goals of the Greenway Showcase were to increase awareness of local greenway efforts, and allow for the sharing of information and resources between greenway groups. The Showcase is supported by Cawaco Resource Conservation & Development Council, Regional Planning Commission of Greater Birmingham, Black Warrior Clean Water Partnership, and McWane Inc.
- **Stormwater BMP Workshop -** A Stormwater Management / Erosion & Sediment Control in Roadway Construction workshop will be held December 12, 2006 in Birmingham, Alabama. The workshop is held in conjunction with the Regional Planning Commission's Department of Transportation Corridor X/Northern Beltline Stakeholder's Group. Sponsors include Regional Planning Commission of Greater Birmingham, Black Warrior Clean Water Partnership, Alabama Cooperative Extension System, Alabama Department of Environmental Management, Cawaco RC&D Council, Inc., USDA-NRCS.
- **Cordova Failing Septic Systems -** The Black Warrior facilitator is working with the City of Cordova to find ways to repair/ remediate failing septic systems in the Crestview Heights subdivision of Cordova. The Walker County Health Department has identified this area as having a 50% septic failure rate and many residents within the community have been cited for failing septic systems. Storm water runoff from the community drains into Evans Creek, a tributary of Cane Creek.

Cahaba

- **Critical Habitat Presentation -** The Black Warrior and Cahaba Clean Water Partnerships hosted a presentation by the Alabama Natural Heritage Program and the US Fish & Wildlife Service concerning the new critical habitat regulations for the Cahaba and Warrior River Basins.
- **Smart Code Workshop -** A Smart Code Workshop was held February 28th at the Center for Regional Planning and Design. Partners of the workshop included: Thomas Goode Jones School of Law, Regional Planning Commission of Greater Birmingham, Cawaco Resource Conservation & Development Council, Inc., Cahaba Clean Water Partnership, Warrior River Basin Clean Water Partnership, and Your Town Alabama, Inc.
- **Agriscience Greenhouse -** This project will demonstrate how to improve the water and air quality of our community and county. This project preserves and enhances the soil and water resources on campus, as well as management of forestlands and will serve as a service to the community and education of students. Partners include: Shelby County Alabama Cooperative Extension System, Shelby County Board of Education, Seaman Timber, and Shelby County Soil & Water Conservation District

Chattahoochee-Chipola

- **" What's In YOUR Water?"/Waters to the Sea: The Chattahoochee River -** The committee is working on presenting the ACWP's 5th Grade "Water YOU Doing?" NPS curriculum and the Georgia developed "Waters to the Sea" CD to teachers for schools located in Phenix City, Eufaula, and Dothan, the three most populous areas in the Chattahoochee-Chipola Basin. Private donations from basin sponsors were received from MeadWestvaco, the Alabama Bass Federation and Farley Nuclear Plant. The "Waters to the Sea" interactive CD has been correlated to the Alabama Course of Study and meetings are underway to present this at Teacher In-service Workshops in early 2007.
- **Low Impact Development Projects, City of Eufaula, AL** - A class of graduate students from the Landscape Architecture Department of the School of Architecture at Auburn University are working with the city of Eufaula to view proposed sites for stormwater remediation projects. The basin Steering Committee has approved the use of some basin donations for a rain garden project once budgets are determined. The AU Landscape Architecture Class will return to the site in December 2006 to reassess and update the design, and then resubmit it to the city.
- **Basin Management Planning –** The basin steering committee is currently supporting the statewide partnership in its effort to develop a basin management plan for the Chattahoochee and Chipola Rivers in Alabama. The final plan is expected to be complete in mid-December.

Choctawhatchee-Pea-Yellow

- **Groundwater Festivals -** The facilitator worked with the Festival Committees in Covington, Crenshaw Dale, Coffee, and Pike Counties. Most of this basin is solely dependent on groundwater for their drinking water needs.
- **"Crawl About" Watershed Models** - Funding has been secured from Wiregrass RC&D council to install two watershed models approximately 12 ft. by 12 ft. in size. The interactive, hands-on nature of the model and use of local topography make this relief map ideal for allowing children and adults to acquire a firm concept of what is meant by the term "watershed". The Florala High School Science Club, the City of Ozark and GW Long High School's FFA will help to install these models.

Coastal

- **Basin Wish List –** The committee is working to develop a prioritized wish list of projects within the basin, which will be used as a guide for the basin and statewide groups for fundraising.
- **Bacterial Source Tracking –** Basin Stakeholders have a strong interest in bacterial source tracking in the basin, and have established a committee to pursue such an effort in early 2007.

Conecuh-Sepulga

- **Groundwater Festivals** - The facilitator worked with the Festival Committees in Covington and Crenshaw Counties. Most of this basin is solely dependent on groundwater for their drinking water needs.
- **Bi-State Watershed Tour** - The facilitator assisted Pensacola Bay Watershed Partnership with a 2-state watershed tour of land uses, agricultural BMP's, wetlands, etc. This was coordinated with Turtle Point Environmental Science Center, Three Rivers RC&D, and the Bay Area Resource Council.
- **Data Gathering Project** - The shortage and/or lack of water quality data for the Conecuh, Sepulga, and Blackwater Rivers watershed has been an ongoing concern of the steering committee. In an effort to address this matter, the committee, in a joint effort with the Alabama Geological Survey, developed a basin wide water monitoring and assessment project. The project includes the testing of 12 different sites across the watershed a minimum of 8 times over a 12 month period. All funds received were from private businesses or foundations with the exception of the cost-share provided by Geological Survey. Work commenced on the project in May 2006 with final report expected in November 2007.

Coosa

- **Watershed Boundary Signs -** The Steering Committee, along with Sub-Committee stakeholders, are in the process of seeking funding for watershed boundary signs for the entire Coosa Basin. Grant monies have already been made available for the Middle Coosa Basin and parts of the Lower Coosa Basin. A sample sign has been produced and reviewed by the Sub-Committees and Steering Committees.
- **Stream Restoration Project**- A stream restoration project is being evaluated in the Lower Coosa Basin. Meetings are being scheduled between a private landowner, the Nature Conservancy, County Commission and Coosa Basin Facilitator on the possibility of the removal of a fallen bridge in Hatchett Creek located in Coosa County, to prevent further erosion and sediment problems in this Outstanding Alabama Water.

Tallapoosa

- **Eclectic Middle School BMP Project -** Facilitators continue to work on the implementation of a demonstration stormwater project at Eclectic Middle School in the Lower Tallapoosa Sub-basin. An initial construction project took place in July 2006. The hillside was graded and revegetated to split the flow of stormwater from a large parking lot, which drains the roof of the school. Engineers who sit on the Lower CWP Stakeholder Committee are volunteering services for the project. The School of Landscape Architecture at Auburn University is working with facilitators to develop a wetlands enhancement program that will be educational and to further aid drainage problems on the site.
- **Saugahatchee Creek Implementation Proposal** – The Saugahatchee Watershed Management Planning Committee evolved from the Lower Tallapoosa Clean Water Partnership after the Tallapoosa River Basin Management Plan was completed in March 2005. This groups meets regularly and is currently working on a Section 319 grant to implement strategies identified in the Saugahatchee Creek Watershed Management Plan.
- **Middle Tallapoosa -** In late 2005, the Middle Tallapoosa CWP formed an Executive Committee and initiated efforts to hire a local coordinator to pursue the implementation of on-the-ground BMPs and educational practices identified by stakeholders on their priority list and in the Tallapoosa River Basin Management Plan. Implementation activities include rain gardens and wetland enhancement projects, water quality monitoring training events, and water festival presentations to local schools.

Tennessee

- **Septic Tank Education** - A Septic Tank Workshop was held in New Market. Participants were given discount vouchers for attending. A septic tank educational program/demonstration was also given to students in 4^{th} – 8^{th} grade.
- **Phase II Stormwater Education/NEMO Workshops –** NEMO presentations were made to: Madison, Limestone and Morgan Counties and the cities of Florence and Decatur.

2006 Annual Nonpoint Source Cooperators Conference

Montgomery's Embassy Suites was the site of the 17^{th} Annual Alabama Nonpoint Source Conference, hosted by ADEM's Education and Outreach Section. The annual ADEM Nonpoint Source Conference was held in January 2006 with approximately 200 stakeholders attending. Presentations included NPS pollution outreach , low impact development models, successes in stream restoration, sub-basin watershed management plans, erosion and sediment control, BMP's and forestry practices, and urban stormwater issues and successes. The conference focus was on coordinating and integrating activities and programs by utilizing a watershed based approach.

Restoration and Management of Rivers and Watersheds – Applied Fluvial Geomorphology

A series of professional workshops on "Stream Restoration Using Natural Channel Design Techniques" began through a coordinated effort with the Alabama Cooperative Extension System, Auburn University Marine Extension & Research Center, and the Mobile Bay National Estuary Program. The demand for these workshops has dramatically increased since the first two workshops were conducted at the University of South Alabama. The workshops have grown in scope to include more advanced topics and additional cooperators including ADEM.

An Introductory Stream Restoration Workshop was held August 21st and 22nd, 2006 in Gadsden, AL. Additional information can be found at www.aces.edu/waterquality/streams/general.htm#workshop. Additional stream restoration workshops will be held as needed and will serve to complement on-the-ground projects.

Attendees Participate In The Hands-on Field Activities During The Stream Restoration Workshop in Gadsden.

Alabama Groundwater Festivals

A key to providing protection for our groundwater resources is education. Nonpoint source pollution and its relationship to groundwater has been demonstrated through several activities at the Groundwater Festivals. The goal of a groundwater festival is to educate 4th grade students, and indirectly their parents, on groundwater issues including what it is, how it is used, and its susceptibility to contamination. The Groundwater Festival is a hands-on festival that is a culmination of classroom study. Children have the opportunity to experience first hand through experimentation and problem solving, the complexity of groundwater and its relationship to nature in general.

Students participate at the first Groundwater Festival held in Talladega at the the Talladega International Motor Speedway.

The first Groundwater Festival in Alabama was conducted on March 20, 1998, in Madison County. The Madison County Festival was a pilot study to determine the impact, interest, and long term prospect of hosting groundwater festivals in Alabama. Since this first festival, approximately 70,000 students, 2800 teachers, and 7000 volunteers have participated across the state. In 2006, 28 counties participated, with 3 of the 28 being first time participants. These included Talladega, Covington and Washington Counties. A web site and an e-bulletin board were also started www.alruralwater.com/waterfestival/ and www.alabamawaterfestival.com/ respectively.

Continuing Education For CAFOs

Managing an animal feeding operation (AFO) and using best management practices means staying informed regarding current regulatory requirements and the latest technology, equipment, management, and disposal methods relating to waste and wastewater. All personnel involved in managing AFOs or concentrated animal feeding operations (CAFOs) need current information in order to make and manage plans that effectively safeguard groundwater and surface water quality and reduce odor. Continuing education training is one way to stay up to date.

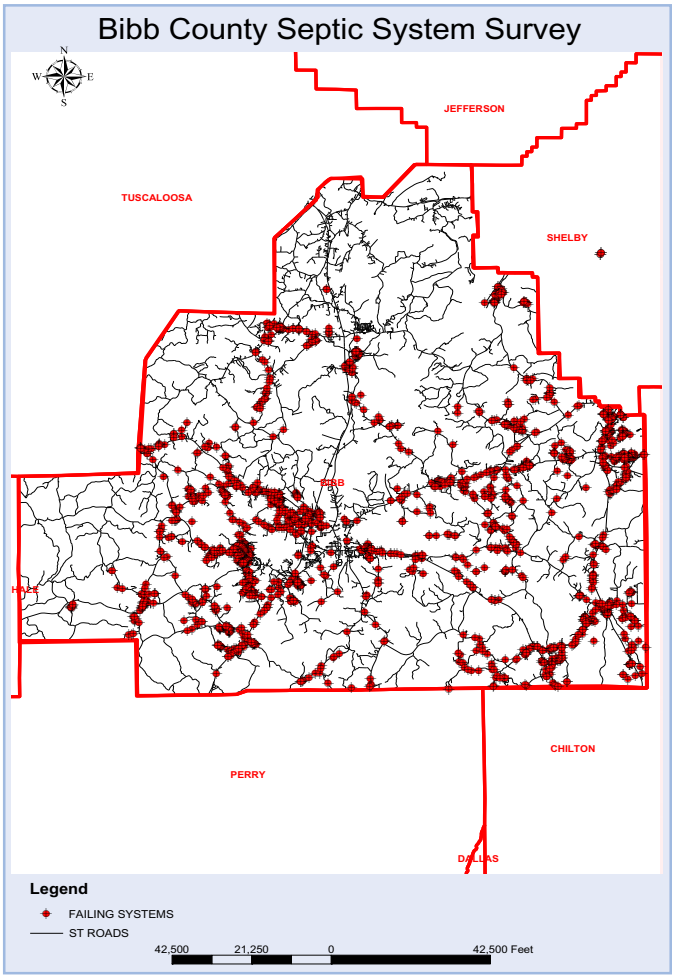
Under Alabama Department of Environmental Management regulations, all managing owners/operators and onsite supervisors of proposed or existing registered CAFO facilities are required to attend annual continuing education training. Currently, a minimum of twelve hours of initial training and six hours of annual refresher training are required for CAFO operators. Proof of continuing education session attendance is required to be submitted each year with the annual CAFO registration.

Typically, members of the Alabama Cooperative Extension System and Natural Resources Conservation Service Waste Management Education Team, in cooperation with ADEM, the Soil & Water Conservation Districts, and the Alabama Department of Agriculture and Industries, present AFO/CAFO Continuing Education Training. The Alabama Farmers Federation, the Alabama Poultry and Egg Association and other interested organizations cosponsor some of this training.

The Cahaba River Septic Tank Rehabilitation Program

Septic Tank Survey

The lack of proper onsite wastewater management and septic tank system performance in the "Black Belt" region, where poor economic conditions and poorly draining soils are common, is thought to be a significant contributor to nonpoint source pollution. In order to estimate the magnitude of onsite wastewater system performance (and/or failure) in this area, a survey was performed at over 4000 home sites in Bibb County, Alabama. Data was collected to locate the home site (GPS latitude and longitude coordinates), determine the number of bedrooms in the home, the number of people occupying the home, the presence of a septic tank and/or drainfield, and to determine onsite wastewater system failure. The data shows that between 13 and 15 percent of home sites do not have an onsite wastewater system (septic tank and/or drainfield), and that of the home sites that do have onsite wastewater systems, between 35 and 37 percent are failing (malfunctioning to the point of causing potential public health concerns). A total of 50 percent of systems in Bibb county have inadequate onsite wastewater management (no system or a failing system).Other counties in rural Alabama that exhibit higher poverty rates and lower median family income rates (i.e. the Black Belt counties) are likely to show onsite wastewater system problems at rates equal to or higher than the results of this survey.



Programs to educate and assist low-income families to obtain appropriate onsite wastewater management are needed. Onsite wastewater management should be seen as one important component of the overall regulated wastewater management infrastructure, just as large municipal wastewater management is highly regulated. Management entities (i.e. wastewater utilities) should be encouraged to manage and maintain onsite wastewater. Education of designers, installers, and maintenance providers is needed. Regulatory codes and enforcement need to be evaluated and improved to protect both public health and the environment.

Cahaba River Septic Tank Workshops

In order to target the problems identified by the Bibb County survey, the Alabama Department of Environmental Management hosted six public workshops at various locations in Bibb and Perry Counties. These free educational workshops offered presentations designed to teach homeowners about septic systems and nonpoint source pollution and were open to residents of Perry and Bibb Counties who utilize a household septic tank system. Upon completion of the workshop, residents were provided a free voucher to have their septic tank system pumped out or repaired. This program also provided homeowners with informational materials explaining how to properly care for their septic systems.

The project was a great success, issuing approximately 400 vouchers to residents of Perry and Bibb Counties. Partners of this project included the Soil and Water Conservation Committee, Perry and Bibb Counties Soil and Water Conservation Districts, the Alabama Department of Public Health, Judson College, the Perry County Commission, the Bibb County Commission and the Alabama Onsite Wastewater Association.

Particpants learn about Septic Systems at the September 12, 2006 Workshop in Bibb County

Alabama Water Watch

Alabama Water Watch (AWW) is a statewide program dedicated to developing citizen volunteer monitoring of Alabama's lakes, streams, and coastal waters. From October 1, 2005 through September 30, 2006, AWW conducted 87 training sessions attended by 541 people. Thirty-four Water Chemistry Workshops (290 people), 29 Recertification Sessions (94 people), 12 Bacteriological Workshops (89 people) and four Stream Biomonitoring Workshops (56 people) were conducted. Twelve trainers were certified during eight workshops. Thirty-seven people are currently certified as AWW Trainers.

Sixty citizen groups submitted data from all ten major watersheds. Most AWW groups monitored in the Tennessee, Tallapoosa, Coosa and Warrior watersheds (14, 11, 11 and 10 groups, respectively). Fourteen groups (23% of total) were composed of teachers and students and five groups (8%) were formed mainly by professionals, making the remaining 69% primarily composed of citizen volunteers. Ten percent of the groups sampled on the coast, while 22% sampled on lakes and 68% on streams across Alabama. A total of 3,601 chemistry and 793 bacteriological data records were submitted. The most active groups were in the Coastal Plain (27% of data received), Tennessee (25% of data) and Tallapoosa (15% of data) watersheds.

Five Data Interpretation Sessions, comparing AWW citizen data with ADEM and AU data, were conducted. Eighteen meetings were attended to promote AWW activities, and requested AWW publications were distributed to eight states. AWW responded to official requests for data from other organizations such as ADEM, Tetra Tech and several monitoring groups. AWW staff attended four AWW Association Meetings and several Clean Water Partnership and AWW group meetings. AWW personnel attended 11 conferences and seminars including the National Water Quality Monitoring Conference in California, the Alabama Rivers Alliance's Annual Watershed Leadership Conference, the 15th Annual Southeastern Lake and Watershed Management Conference, the 2nd Annual State of Our Watershed Conference - the Tallapoosa River Basin, and the 17th Annual Nonpoint Source Conference in Alabama. Approximately 100 people attended the AWW Annual Meeting and Picnic held in Elberta, AL on May 20, 2006 hosted by Wolf Bay Watershed Watch and Weeks Bay Water Watch.

Program Accomplishments and Initiatives included development of several educational and outreach materials and tools, including printing of the extensively revised Water Chemistry Monitoring manual. Several publications were produced and printed including two waterbody reports (Saugahatchee Creek Watershed - Past, Present & Future and Citizen Volunteer Water Monitoring on the Locust Fork River), one AWWareness newsletter and two brochures (Enhancing Aquatic Science Education in Alabama and an updated AWW Program brochure) were developed and printed. The AWW website has been regularly updated, and visited over 117,000 times since its creation. Since 1993, AWW has received over 37,600 water chemistry and 7,800 bacteriological data records, and more than 1,880 sites have been monitored on 700 waterbodies across Alabama.

Alabama Envirothon

On April 6-8, 2006, the Alabama Envirothon, which is an annual outdoor environmental education competition for high school students, was held at Camp ASCCA near Jackson's Gap, Alabama. During this three day event, participating teams completed training and testing in five natural resource activities which included soils and land use, aquatic ecology, forestry, wildlife, and a current environmental issue. This year's complex issue was entitled "Water Stewardship in a Changing Climate". On the first day participants receive special training in each of the above areas. On the second day teams undergo testing and on the final day teams perform presentations before a panel of judges who are knowledgeable in environmental issues. Nine teams from the state took part in this year's competition with Oak Mountain High School of Shelby County being the overall event winner. They advanced to the Canon Envirothon in Canada to compete for recognition and scholarships. Belgreen High School and Hanceville High School Team 1 finished second and third, respectively.

The Alabama Department of Environmental Management Nonpoint Source Unit, in a joint effort with other agencies, continued to play a supporting role in this competition by helping in event planning, developing test materials, leading many of the training events, judging, and overall program implementation. In addition, local Soil and Water Conservation Districts and RC&D Councils played an important role by providing training, support, and funding for the event.

Broad-scale Communication and Forecasting for Environmental Quality

WSFA "Commitment to Clean Water" Website - Montgomery

This project provided the funding to create an interactive website with watershed protection information (e.g., satellite imagery/flyovers, environmental data and information, watershed status/health, pollution prevention tips and solutions, etc.) for a Mobile, Alabama television station (WKRG-TV) to encompass the coastal Alabama River Basin, and a Montgomery, Alabama television station (WSFA-TV) to encompass the Upper-Middle Alabama, the Lower-Middle Tallapoosa, and the Lower Coosa basins. On November 15th, 2004 WSFA debuted its new "Commitment to Clean Water" Website and on November 17th, 2004 WKRG debuted its new "Watersheds: The Coastal Connection" website. During the past six months, StormCenter has produced nine Environmental News Stories for WSFA and 12 for WKRG. The goal during the coming year is to produce more locally focused watershed stories with the help of the content provider's network. Envirocast On-Line products were also produced where earth science imagery from around the globe was selected to address important issues related to our environment. StormCenter Communications has developed a new look for the website that was introduced at the 2006 ADEM Nonpoint Source Cooperators Conference. The following sections have been added to WebViewer in 2006:

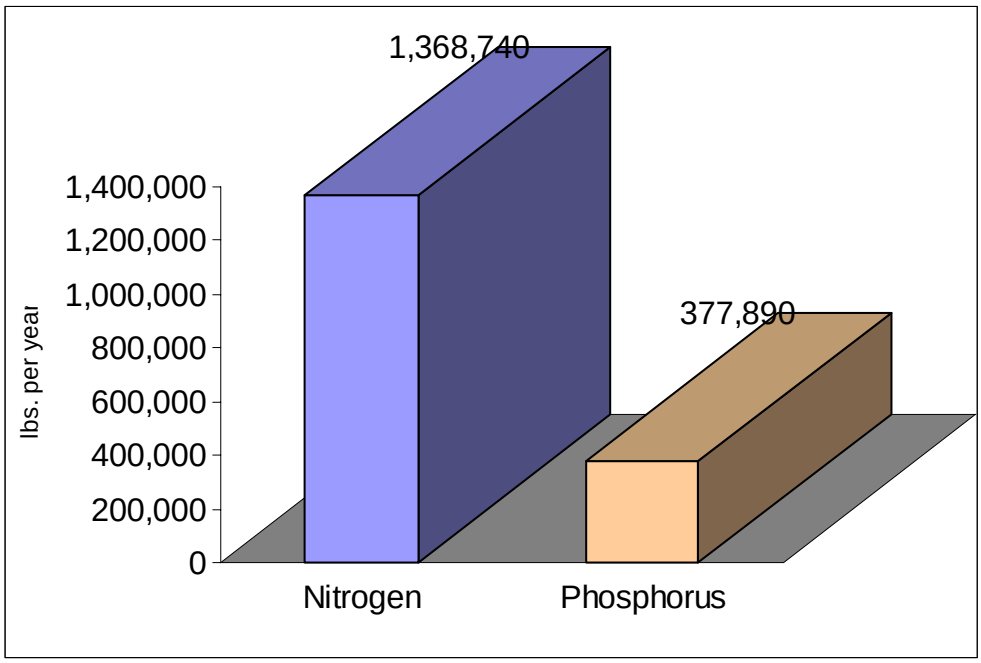
- Finding Your Watershed
- News and Media Features
- Watershed Watch
- Learning Center
- Special Features

The Department has worked to secure federal funds to expand this project into the Birmingham area and to expand this project into the Huntsville area. This expansion will result in the state's four largest metropolitan areas (Huntsville, Birmingham, Montgomery, Mobile) being positively impacted by this project.

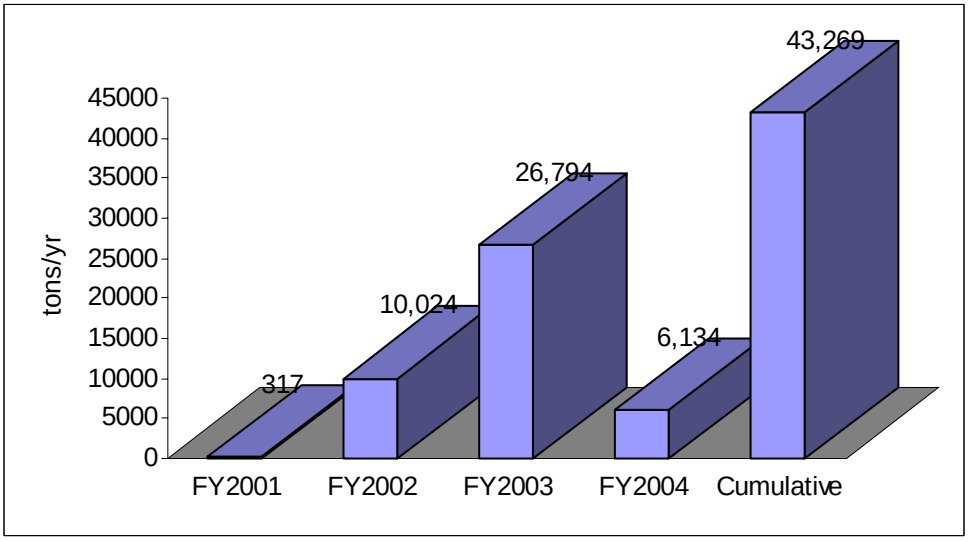
Pollutant Load Reductions

The projects/activities outlined in this report provide a brief overview of the Department's efforts to address nonpoint source pollution in Alabama. However, the real measure of the effectiveness of these efforts is the amount of pollutants (Nitrogen, Phosphorus, Sediment) that have been removed from Alabama waterways. The charts listed below contain data derived from EPA databases and illustrate the positive impact these efforts have made on water quality in Alabama.

Reported Pollutant Load Reductions from FY2002 - FY2005 Projects (from GRTS)



Reported Sediment Load Reductions FY2001-FY2004 (from GRTS)



NPS Program Goals

Goal 1: *Collect reliable water quality data and information in order to ascertain the extent, degree, and potential for NPS pollution to surface and groundwaters* (Endpoint: 2015)

- ADEM finalized the 5-year rotational Southeast Alabama River Basins NPS Assessment with the final report available to the public in 2006.
- ADEM continued to finalize data for the 5-year rotational Alabama, Coosa, Tallapoosa Basin NPS Assessment Report.
- ADEM continued to assess data from the 5-year rotational Escatawpa, Lower and Upper Tombigbee, and Mobile River Basins NPS Assessment.
- ADEM continued to collect and analyze water quality data from reservoir monitoring (Section 314: Clean Lakes Program) to address nutrient criteria.
- ADEM continued to coordinate fish collection activities with other state and federal agencies, so the Alabama Department of Public Health can ascertain the need to issue fish consumption warnings or advisories to protect public health.
- ADEM continued to populate STORET and Dept-wide databases with NPS water quality data.
- ADEM updated the nonpoint source component of the Integrated Water Quality Monitoring and Assessment Report.
- ADEM continued to collect NPS water quality data according to the EPA-approved ADEM Quality Assurance Management Plan.

Goal 2: *Integrate the Alabama NPS Source Management Program and CWA Section 319 grant funding, with development and implementation of Total Maximum Daily Loads (TMDLs*). (Endpoint: 2015)

- The Section 319 incremental grant funding continued to target Section 303(d) listed waterbodies for the development and implementation of watershed management plans. The watershed management plans are designed to address Section 319 grant guideline "a-i" watershed plan elements.
- The Water Division completed development of 1996 listed TMDLs to meet the 1998 EPA-consent order timeline.
- The ADEM NPS Unit and Water Division finalized a list of watersheds that could be de-listed in-part due to Section 319 project activities.
- In 2006, the Yellow Bank Watershed Management Plan was finalized and chosen as one of the top 10 watershed management plans in the nation by EPA. ADEM is coordinating with stakeholders for Section 319-funded best management practice funding.
- In 2006, watershed management plans and proposals targeting NPS TMDLS continued to be implemented in Yellow Bank Creek, Goose Creek, Thacker Creek, Long Branch Creek, Crowdabout Creek, Black Creek, and Harris Creek watersheds. All of these Section 303(d) listed waters have TMDLs developed.
- In 2006, cooperative agreements were executed to implement best management practices in the Briark and Beaverdam Creeks in the Tennessee Basin and Black Branch Creek in the Black Warrier Basin. These are 303(d) listed streams.

Goal 3: *Coordinate and leverage federal, state, and local funding and other resources to design, install, or maintain appropriate NPS management practices needed to attain water quality standards.* (*Endpoint: 2015)*

- In 2006, Section 319 cooperative agreements continued to implement several best management practices in Yellow Bank Creek, Goose Creek, Thacker Creek, Long Branch Creek, Crowdabout Creek, Black Creek, and Harris Creek watersheds. All these Section 303(d) listed waters have NPS TMDLs developed.
- ADEM continued to partner in a Memorandum of Agreement with the Alabama Forestry Commission to assure silviculture BMPs are adequate, citizen complaints are resolved, and enforcement actions taken, if needed.

- ADEM continued to partner in a nationally recognized cooperative agreement (consent order) with the Alabama Department of Transportation to implement statewide BMPs in conjunction with road building activities.

- ADEM continued to participate on the NRCS State Technical Committee for Farm Bill cost-share program targeting and BMP technical standards and guidelines development.

- ADEM continued to partner with the SWCC in maintaining a statewide CAFO notice of registration tracking database. This database is "shared" by state and federal agricultural agencies to track animal feeding operations and waste management plan development status. ADEM continued to partner with the Alabama Cooperative Extension System to disseminate information needed to meet or exceed AFO/CAFO rules through the ACES website. ADEM continued to partner with the NRCS concerning land application of litter including technical standards and guidelines related to animal waste and nutrient standards. ADEM also worked with the Alabama Department of Agriculture and Industries on the implementation of the Certified Animal Waste Vendor Program. In addition, ADEM partnered with the Alabama Animal Waste Management Team at Auburn University to address environmental regulations, agricultural economics, crop and soil science, water quality, and agricultural pollution prevention issues.

- ADEM continued to partner with ACES, NRCS, and the National Weather Service to assist farmers with implementation of applicable regulatory BMP requirements by providing a FORECAST and FARMERS Map website for land application of litter in order to meet or exceed NRCS technical standards and guidelines and to comply with applicable ADEM requirements.

- ADEM continued to leverage interagency funding by supporting statewide NPS agricultural water quality and statewide erosion and sedimentation coordinator positions with the Alabama Soil and Water Conservation.

- The ADEM NPS Unit continued to partner with the Alabama Clean Water Partnership in identifying and leveraging match for Section 319 grants as well as providing funds for river basin/watershed projects.

- The ADEM NPS Unit continued to support technology transfer, technical assistance, and education/outreach for statewide hydrologic/habitat modification projects (Alabama Stream Team).

- The ADEM NPS Unit continued to promote the NEMO program in Alabama including attending the national meeting and participating in statewide meetings and presentations.

- ADEM continued to partner with several NPS cooperators to present Stormwater Management Worksops, Erosion and Sediment Control Workshops, NEMO Workshops, and Alabama Stream and Restoration Conferences to address several NPS categories.

Goal 4: *Develop 10 river basin management plans (8-digit Hydrologic Unit Code Cataloging Unit) that present practical "big-picture" goals, objectives, and milestones to protect impaired or threatened waters. (*Endpoint: 2015)

- As of 2006, the following river basin management plans have been developed:
  - Tennessee
  - Cahaba
  - Mobile River (Coastal)
  - Black Warrior River (including Locust Fork, Mulberry Fork, and Five Mile Creek)
  - Alabama
  - Tombigbee
  - Tallapoosa
  - Coosa (including Upper, Middle, and Lower)
  - Choctawhatchee, Pea, and Yellow River Basins
  - Conecuh- Sepulga River Basins

- The final copy of the Chattahoochee-Chipola River Basins Management Plan will be completed by the end of 2006. The plan is expected to be available in 2007.

Goal 5. *Develop or implement 10 subwatershed protection plans (11-14 digit Hydrologic Unit Code subwatershed number) to provide reasonable assurance that load allocations for targeted sources and causes of NPS pollution are being addressed and water use classifications and standards can be restored as expeditiously as possible.* (Endpoint: 2015)

- In 2006, Section 319 cooperative agreements continued to implement completed or draft watershed management plans in Yellow Bank Creek, Goose Creek, Thacker Creek, Long Branch Creek, Crowdabout Creek, Black Creek, Brier Fork/Beaverdam Creeks, and Harris Creek watersheds. Subwatershed plans for these Section 303(d) listed waters will target the sources and causes identified in the TMDLs that have been developed for these impaired waters.

- ADEM continued to partner with the Black Warrior Clean Water Partnership to implement the Dry Creek Watershed Management Plan, the Tennessee Valley Clean Water Partnership to finalize the Harris Creek Watershed Management Plan, the Tennessee Valley Authority, Tennessee Valley Clean Water Partnership, and The Nature Conservancy to finalize the Paint Rock Watershed Management Plan (to include the Section 303(d) listed, Little Paint Rock, Guess Creek, and Cole Spring Branch watersheds).

- ADEM continued to partner with the Geneva County Soil and Water Conservation District to develop a subwatershed plan for Dowling Branch. The plan will address NPS pollutant sources and causes as listed on the Section 303(d) list of impaired waters.

- ADEM continued to partner with the Wiregrass RC & D to develop a subwatershed plan for an unnamed tributary to Harrand Creek located in Coffee County. The plan will address NPS pollutant sources and causes as listed on the Section 303(d) list of impaired waters.

Goal 6. *Support the efforts of the Alabama Clean Water Partnership (ACWP) Program* (Endpoint: 2015, or until the ACWP program is institutionalized)

- ADEM continued to partner with the Alabama Clean Water Partnership by serving on the Board of Directors. ADEM's NPS Unit staff continued to be closely involved with all major river basin, sub-basin, and watershed CWP advisory, technical and education and outreach committees so that watershed stakeholders "work off the same page." Meetings are generally held quarterly.

- ADEM continued to partner with the Alabama Clean Water Partnership by providing Section 319 financial assistance for nine river basin facilitators and one statewide program coordinator.

Goal 7. *Plan, sustain, or expand statewide NPS education and outreach to target agriculture, silviculture, urban, construction, resource extraction, and hydrologic/habitat modification.* (Endpoint: 2015)

- ADEM continued to support the efforts of the Alabama Clean Water Partnership which includes a statewide education and outreach committee that develops resources that target general and specific NPS education topics. Each of the individual basin Partnerships have also coordinated and participated in many workshops, conferences, and displays in the past year and have targeted many specific and cross-cutting NPS categories statewide.

- Erosion and Sediment Control Workshops targeting construction runoff have been held across the state through a project with the Soil and Water Conservation Society.

- This past year Alabama's Nonpoint Source Education for Municipal Officials (NEMO) Project continued with a second tier of training focusing on Growth Readiness.

- An introductory stream restoration workshop was held in August 2006 in Gadsden. This workshop featured classroom and field work that introduces basic concepts of fluvial geomorphology and classification systems such as the Rosgen Stream Classification System. It also highlighted work completed on two on-the-ground projects completed in the Coosa Basin.

- Alabama Water Watch is a statewide program dedicated to developing citizen volunteer monitoring of Alabama's lakes, streams, and coasts. From October 1, 2005 through September 30, 2006, AWW conducted 87 training sessions attended by 541 people; Thirty-four Water Chemistry Workshops (290 people), 29 Recertification Sessions (94 people), 12 Bacteriological Workshops (89 people) and four Stream Biomonitoring Workshops (56 people) were conducted. Twelve trainers were certified during eight workshops. Thirty-seven people are currently certified as AWW Trainers.

- The Broad-scale Communication and Forecasting for Environmental Quality project provided an interactive website with watershed protection information (e.g., satellite imagery/flyovers, environmental data and information, watershed status/health, pollution prevention tips and solutions, etc.) that is used as a communications mechanism to relate the connection between the weather, the environment, and watershed protection, to the citizens of Alabama.

- ADEM provided funding for the training of district administrative coordinators (DACs) of the Natural Resource Conservation Service in conservation education. As a result of this workshop, DAC's in Lawrence, Elmore, Shelby, Lee, Dale, and Conecuh counties conducted workshops to teach elementary and high school teachers about various aspects of conservation and environmental protection.

- ADEM, in a joint effort with other agencies, continued to play a supporting role in the Alabama Envirothon competition by helping in event planning, developing test materials, leading many of the training events, judging, and overall program implementation.

- Nonpoint source pollution and its relationship to groundwater are demonstrated by several activities at the Alabama Groundwater Festivals. Twenty-eight counties hold the festivals on an annual basis.

Goal 8. *Report as applicable, monitored or modeled estimates of nitrogen (lbs), phosphorus (lbs) or sediment (tons) load reductions to help quantify the effectiveness of Section 319 projects in protecting water quality and attaining applicable water quality standards.* (Endpoint: 2015)

- Pollutant Load Reductions are summarized earlier in this report.

- The ADEM NPS Unit continued to update load reduction data in the Grants Reporting and Tracking System (GRTS).

- The ADEM NPS Unit attended the Annual GRTS Meeting in Dallas, TX in November of 2006 which provided training in the new GRTS system, Waters Webrit, and StepL and Region 5 load reduction modeling.

Goal 9. *Obtain NOAA and EPA Final Approval of the Alabama Coastal Zone NPS Management Program (CZARA) (*Endpoint: 2003).

- In January the Department's Alabama Coastal Nonpoint Pollution Control Program (ACNPCP) coordinated with EPA-R4 and ADEM 319 to develop programmatic approaches for the ACNPCP. Staff continued work on the *Agriculture BMP Survey Project**, which was being conducted throughout the two coastal counties. The ACNPCP also participated in the State NPS Conference and in a local seminar to educate the public concerning the restructuring of the USACOE-Mobile District organization, staffing and procedures.

- February saw the wrap-up of the *Agriculture BMP Survey* project, while still providing support for the ongoing *OSDS Operation and Maintenance Assessment Report** and *Alabama Streams and Wetlands Restoration Conference** projects. The ACNPCP provided technical assistance (via the recently developed *Alabama Coastal Streams Reference Reach and Regional Curve Study** data) and participated in the development of the D'Olive Watershed Project being led by the Mobile Bay NEP.

- In March the ACNPCP staff initiated the *Agriculture Targeted Water Quality Study for Coastal Alabama** for six key sub-watersheds within both Baldwin and Mobile counties. ADEM's ACNPCP staff negotiated projects funding and program operational monies from ADCNR for FY07. The ACNPCP procured final Project Products from our contractors which included the reports and data for these projects:

- The Coastal NPS Management Program documents and submissions have undergone review by NOAA and EPA. Section 319 set-aside funding for coastal programs has not been expended pending assessment of their comments and the potential need to fund/target specific actions needed for ultimate approval. However ADEM staff and EPA met recently to coordinate an approvable approach to these items and issues.

    1. **Agriculture BMP Survey Project -** This project was contracted to the SWCDs to provide for the development of an Agriculture BMP Survey and a Coastal Alabama Agriculture BMP Survey Report, detailing the assessment of agricultural BMPs in high density impact sub-watersheds within both Baldwin and Mobile Counties.

    2. **Hydromodification/Riparian Project A: Riparian Stream GIS Layer Survey -** This project was conducted in coordination with the ADEM-ISB staff and the ACNPCP for the digitization of Mobile County stream layers and coordination with the

Baldwin County Planning and Zoning Department to ensure the production of the Baldwin County stream layer is compatible and correlates with the Department's product. It also provided for the GIS layer development and integration of attributed channel modification structures including culverts, dams, weirs, grade control structures, and levees, as visible using the CIR photography.

3. **Hydromodification/Riparian Project B-Reference Reach & Regional Curve Studies -** This project was contracted to the U.S. Fish & Wildlife Service to develop a Coastal Alabama Riparian Reference Reach and Regional Curve Study that integrated project products to include site assessment, gauge surveys, and regional curve development.

4. **Watershed Protection: Mobile County Public Works GIS Layer Project -** This project was contracted to the Mobile County-Public Works Division to adapt, develop, and provide integrated Geographic Information System (GIS) data layers generated by the contractor to include all paved and unpaved public roadways and any other related infrastructure including bridges, major culverts, right-of-ways (ROWs), and intersections in Mobile County.

5. **Vegetated Treatment Strips & Buffer Technical Training Workshop -** This project with the Auburn University Marine Extension and Research Center provides for the development, production, and sponsorship of a two-day Vegetative Treatment Systems Workshop, detailing classroom training from regulatory and University instructors to gain an understanding of the diversity of vegetated treatment systems as NPS buffers, and in-the-field observation of a variety of examples found in Coastal Alabama.

6. **Wetland Rapid Assessment Procedure (WRAP) Training Workshop -** This project with the Alabama Coastal Foundation through the Mobile County Soil and Water Conservation District provides for a two-day technical instruction workshop. This successful two-day workshop was attended by both regulatory and resource consultant staff members and Mr. Boyd Gunsalus focused his presentation on the field-use of the WRAP module as a wetland assessment tool.

7. **Coastal Alabama Wetlands Plant Identification Workshop -** This project was contracted to the Alabama Coastal Foundation through the Mobile County Soil and Water Conservation District to provide for the development of a technical assistance workshop that provided training for the Program's 'Wetlands and Riparian Areas' category issues. This 4-day workshop was field oriented and emphasized the dominant plant species found in wetlands, adjacent uplands, and the transition zones.

8. **Marinas Targeted Water Quality Study for Coastal Alabama -** This project was conducted by ADEM-Mobile Branch, Environmental Assessment Unit and Central Laboratory. The Marina Targeted Water Quality Study documented baseline water quality data in Marina Basins within the Mobile and Baldwin County area by collecting field samples during the Summer/ Fall boating season. The ACNPCP selected the six most concentrated areas of marinas/recreational boating facilities and chose at least five marinas from each concentrated area to conduct water quality sampling.

9. **Alabama Streams and Wetlands Restoration Conference -** This project with the South Alabama Regional Planning Commission (SARPC) provides a two-day technical conference for the Coastal NPS Management Program. The ACNPCP hosted the first Alabama Statewide Conference on Stream and Wetlands Restoration to showcase stream and wetland restoration concepts and efforts throughout the state of Alabama and the Southeastern United States.

10. **OSDS Operation and Maintenance Assessment Report -** This project with the University of South Alabama-School of Engineering analyzed all available and pertinent OSDS data-sets collected and consolidated from both the Mobile and Baldwin County Health Departments to develop a "Coastal Alabama OSDS Operations and Maintenance Assessment Report." The report will incorporate data pertaining to the placement, operation, and maintenance of OSDS from local certified pumpers/installers to ascertain system failure rates and percentages. This project is aimed at assessing the operation and maintenance of OSDS within the ACNPCP Management Area, utilizing baseline and pertinent locale/location information to report on the estimated rate of failures, inspections, and maintenance projections.

11. **Coastal Alabama Marinas BMP Survey** - This project was conducted by ADEM's ACNPCP staff in coordination with ADEM-Mobile Branch, Environmental Assessment Unit. This Project will seek to locate coastal marinas/boat ramps and identify baseline Best Management Practices (BMP) data in Marina/Recreational Boating sites within the Mobile and Baldwin County area. This study will implement and demonstrate credible survey tools within the Management Area (MA), which will document implementation of the Program's CZARA-§6217 management measures (MMs).

12. **Marina BMP Implementation Project: River Delta Marina Site** - ACNPCP staff, along with the Mobile County-Office of Parks and Recreation began a pilot project to implement recommended CZARA-§6217 management measures for marinas at the newly acquired Mobile County River Delta Marina (previously the Dead Lake Marina). Preliminary BMP Survey and Water Quality assessments, inspections and sampling have been concluded upon the site. ADEM's ACNPCP staff has assessed the BMP Survey and Marina Water Quality Study information in order to evaluate site needs and incorporate

marina category MMs as Project recommended Marinas BMPs. These BMPs have been included for implementation within the Project contract.

13. **Coastal Alabama Full Circle Pesticide Container Recycling Program** - This project is contracted to the Alabama Department of Agriculture and Industries (ADAI) to provide technical assistance workshops to benefit the coastal farming community. This project also provides for two local recycling events that will safely collect and dispose of used pesticide containers from agriculture and plant nursery operators within the two coastal counties. This project is ongoing and slated for continuance in FY07 as well.

14. **Agriculture Targeted Water Quality Study for Coastal Alabama -** This project is being conducted by ADEM's ACNPCP staff, ADEM-Mobile Branch, Environmental Assessment Unit and Central Laboratory. The *Agriculture Targeted Water Quality Study* will seek to identify baseline water quality and associated agriculture indicator data in targeted stream reaches within the Mobile and Baldwin County area by collecting field samples during the Spring field preparation and farming season. The ACNPCP will select the six most concentrated sub-watersheds with the highest density of farming operations and choose at least five adjacent stream reaches from each concentrated area to conduct water quality sampling.
**2006 Spring drought conditions have forced the postponement of this WQ sampling project through the Spring of 2007.

15. **HGM Training Module for Tidal Fringes Marshes in the Northern Gulf of Mexico** - This project is being conducted in cooperation with the Mississippi Department of Marine Resources (MS-DMR) and the USA Corps of Engineers Research and Development Center (ERDC). This Hydrogeomorphic (HGM) Approach utilizes an interagency Assessment Team (A-Team) to develop functional indices and use them to assess the capacity of a specific wetland type and to perform functions relative to similar wetlands in the same geographic region. ADEM's ACNPCP has participated throughout the development of this HGM Tidal Fringe Marsh module, which was designed to complement CWA-§404permit review considerations, mitigation requirements, designing wetland restoration projects and managing those coastal wetland resources from the Perdido River sub-watersheds in Alabama to the Pearl River sub-watersheds in Mississippi.

16. **HGM Training Module for Headwater Slope (Bayhead) Wetlands for the Coastal Plains of Alabama and Mississippi** - This project is being conducted in cooperation with the Mississippi Department of Marine Resources (MS-DMR) and the USA Corps of Engineers Research and Development Center (ERDC). This Hydrogeomorphic HGM) Approach utilizes an interagency Assessment Team (A-Team) to develop functional indices and use them to assess the capacity of a specific wetland type and to perform functions relative to similar wetlands in the same geographic region. ADEM's ACNPCP has participated throughout the development of this HGM Bayhead Wetlands module, which was designed to complement CWA-§404permit review considerations, mitigation requirements, designing wetland restoration projects and managing those coastal wetland resources from the Perdido River sub-watersheds in Alabama to the Pearl River sub-watersheds in Mississippi.

Goal 10. *Report annual Section 319 grants Program Administrative Efficiency Measures* (Endpoint: 2015)

- ADEM reduced annual grant duration to expedite obligation of grant funds beginning with the FY06 Application for Federal Assistance.

- ADEM reduced cooperative agreements (e.g., watershed management projects) from five-year to three-year duration.

- ADEM continued to provide project status updates to GRTS.

- ADEM developed and maintained a Section 319 project budget-tracking database for all ongoing grant award years.

- ADEM submitted the FY07 Application for Federal Assistance and workplans to EPA prior to due dates. Ongoing grants are administered and managed according to EPA guidelines.

- ADEM continued to facilitate development of watershed management plans in order to obligate incremental grant funding and to implement the NPS components of TMDLs.

- ADEM continued to make available at least 20% grant funding for the development of watershed plans and 80% for watershed project implementation.

- ADEM continued to leverage Farm Bill funding for BMP implementation in Section 319 watershed projects.

Goal 11. *Utilize a flexible, targeted, iterative, and broad-based approach to support EPAs long-term National Vision that, "All States Are Implementing Dynamic and Effective Nonpoint Source Programs Designed to Achieve and Maintain Beneficial Uses of Water*." (Endpoint: 2015)

- ADEM continued to provide financial and technical support to the Alabama Clean Water Partnership (ACWP). Provided financial support for ACWP river basin coordinators and a statewide CWP facilitator to assist stakeholders in watershed restoration and protection.

- ADEM partnered with several public and private agencies to provide non-federal grant match. Although final figures are not available to date, non-federal match is expected to exceed the 40% minimum grant requirement.

- ADEM continued to support the 5-year rotational river basin assessment approach.

- ADEM continued to provide financial assistance and advisory support for statewide voluntary water quality monitoring and water quality reporting database management.

- ADEM continued to partner with ADPH to protect the public health (collected and analyzed fish for consumption advisories).

- ADEM continued to hold a statewide NPS Cooperators Conference (17th annual) and many ACWP meetings to enhance stakeholder communications.

- ADEM promoted the voluntary NPS implementation approach, but also coordinated citizen complaints with the ADEM Field Operations Mining and Nonpoint Section in order to assure abatement of NPS water quality impairments.

NPS Program Concerns

a) Timely award of the annual Section 319 grant to the state by EPA
b) Lack of interest by stakeholders to develop watershed-based management plans (primarily associated with estimating load reductions)
c) Inconsistencies with the Grant Reporting and Tracking System guidance (especially concerning load reduction reporting)
d) The shift from political boundaries to an ecosystem-based water quality protection approach
e) A general deficient of holistic water quality/watershed management protection and "home-rule" policy decisions and actions to keep pace with development and changes in land uses.
f) Assurance/sustainability of long-term partnerships and project commitments (10-15 years or more of BMP implementation may be required before improvements are measurable)
g) Comprehensive agency, academia, and other public and private workload clearinghouse to effectively and efficiently coordinate and implement statewide multi-scope and scale programs is needed
h) Need better spatial and temporal monitoring and assessment communication and capabilities among and between data gatherers. Accurate and defensible data is a must. Need to close data gaps.
i) Need adequate resources and additional expertise to collect and analyze/interpret water quality data to better target and implement needed management practices (e.g., sources and causes – Is it point or NPS; animal or human bacterial contamination; natural or anthropogenic pollutants; atmospheric deposition or landuse based, etc.?)
j) Diversity of interest, scope, scale and approach of stakeholders to manage human health issues, upland and coastal wetlands, estuaries, submerged aquatic vegetation, T&E species; nonnative invasive species, natural catastrophes (hurricanes and flooding); stream restoration, public lands, interstate watersheds, and pollution prevention.

NPS Program Recommendations

a) Continue to develop and implement watershed management plans that meet Section 319 grant guidelines "a-i" watershed plan elements.
b) Target best management practice implementation to watersheds with Section 303(d) impaired waters.
c) Continue to promote a flexible, targeted, iterative, and broad based statewide and watershed protection approach.
d) Continue to expeditiously report pollutant load reductions, especially nitrogen, phosphorus, and sediment.
e) Continue to establish and build local public/private partnership capacity. Continue to promote open dialogue among and between resource agencies and the public.
f) Continue to encourage strategic partnerships, capitalizing on and leveraging existing funding, and plan ahead for potential budget restraints.
g) Base management decisions on sound science – not threats of lawsuits, politics, or "knee-jerk" reactions to real or perceived threats and problems.
h) Continue to prioritize and fund quality projects with achievable and measurable goals. Work within the existing coordination and implementation partnership framework.
i) Continue to promote geospatially referencing of data and project sites
j) Continue to better communicate efforts to government officials and the news media, including quality of life issues.
k) Continue to seek citizen involvement. Articulate goals, build awareness, and sustain interest and enthusiasm.
l) Continue to be open to public feedback concerns and recommendations.
m) Deliver a consistent program message, but be willing to change course direction when project or management efforts appear to falter.
n) Continue to collaborate with statewide environmental education partners, particularly pertaining to state curriculum standards and requirements, outdoor classrooms, resource materials, and teacher workshops/training.
o) Promote low impact design/environmental protection university-level courses for building/construction, landscaping, and engineering professions.
p) Generate and disseminate knowledge. Involve stakeholders before, during, and after Section 319 project funding.
q) Continue to address a mix of water quality and technology based programs using a combination of regulatory, voluntary, education, financial, and technical assistance programs to protect and maintain beneficial uses of surface and groundwater as expeditiously as possible.
r) Obtain final EPA/NOAA approval of the CZARA- Coastal NPS Management Program.

Agency Cooperators

As the lead state agency of the Alabama Nonpoint Source Management Program, the Alabama Department of Environmental Management works with many cooperators across the state along with adjoining state and local agencies. The Department has established a unique partnership with each of the following agencies/organizations to implement projects and enhance water quality in Alabama.

Federal Agencies

- USDA - Natural Resources Conservation Service
- U.S. Fish and Wildlife Service
- Weeks Bay National Estuarine Research Reserve
- USDA-Farm Service Agency
- Tennessee Valley Authority
- U.S. Space and Rocket Center
- U.S. Geological Survey

State Agencies

- Alabama Soil and Water Conservation Committee
- Auburn University Department of Fisheries & Allied Aquacultures
- Alabama Cooperative Extension System
- AU Marine Education and Research Center
- Alabama Agricultural Experiment Station
- Choctawhatchee, Pea and Yellow Rivers Watershed Management Authority
- Geological Survey of Alabama
- Alabama Department of Education
- Mississippi State University Cooperative Extension System
- University of West Alabama
- University of Alabama
- Shelton State Community College
- Auburn University Montgomery
- Alabama Department of Agriculture and Industries
- University of North Alabama
- Alabama A&M University

Local Agencies/Organizations

- StormCenter Communications
- Alabama Water Watch Association
- Storm Water Management Authority
- Alabama Clean Water Partnership
- Alabama Pulp and Paper Council
- Montgomery Water Works and Sanitary Sewer Board
- Shelby County Commission
- CAWACO RC&D
- Alabama Power Foundation
- Dee Rivers Ranch
- Tri-River Water Watch
- Tombigbee RC&D
- Save Our Saugahatchee
- Shelby County Commission
- Morgan County Commission
- Sand Mountain-Lake Guntersville Watershed Conservancy District
- Alabama Chapter Soil and Water Conservation Society
- Soil and Water Conservation Districts (counties of Franklin, DeKalb, & Morgan)
- Soil and Water Conservation Districts (counties of Baldwin, Mobile, & Covington)
- Madison County Soil & Water Conservation District
- Alabama Association of Conservation Districts
- Tri Rivers Waterway Development Association
- Flint River Conservation Association
- Alabama Mountains, Rivers, and Valleys RC&D
- Madison County Watershed Advisory Committee
- Barbour County Soil and Water Conservation District
- Bullock County Soil and Water Conservation District
- Soil and Water Conservation Districts (counties of Coffee, Covington, Crenshaw, Dale, Geneva, Henry, Houston, & Pike)
- Coosa Valley RC&D
- Lake Watch of Lake Martin
- Lake Wedowee Property Owners Association
- Soil and Water Conservation Districts (counties of Chambers, Clay, Cleburne, Coosa, Elmore, Lee, Macon, Montgomery, Randoph, Tallapoosa, and Talledega)
- Lauderdale County SWCD
- Cullman County SWCD
- Blount Soil and Water Conservation District
- Winston County Soil and Water Conservation District
- Cullman County Poultry and Egg Association
- Cullman County Cattlemen's Association
- Cullman County Commission
- Marshall County Commission
- Sand Mountain Research and Extension Center
- Sand Mountain Lake Guntersville Watershed Conservancy District
- Soil and Water Conservation Districts (counties of Marshall, Jackson, and Etowah)
- Pickens County School System
- Madison County Department of Public Health
- Madison County Cooperative Extension System